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THE JOHN CRERAR

The OIL and GAS JOURNAL

PRODUCING REFINING MARKETING

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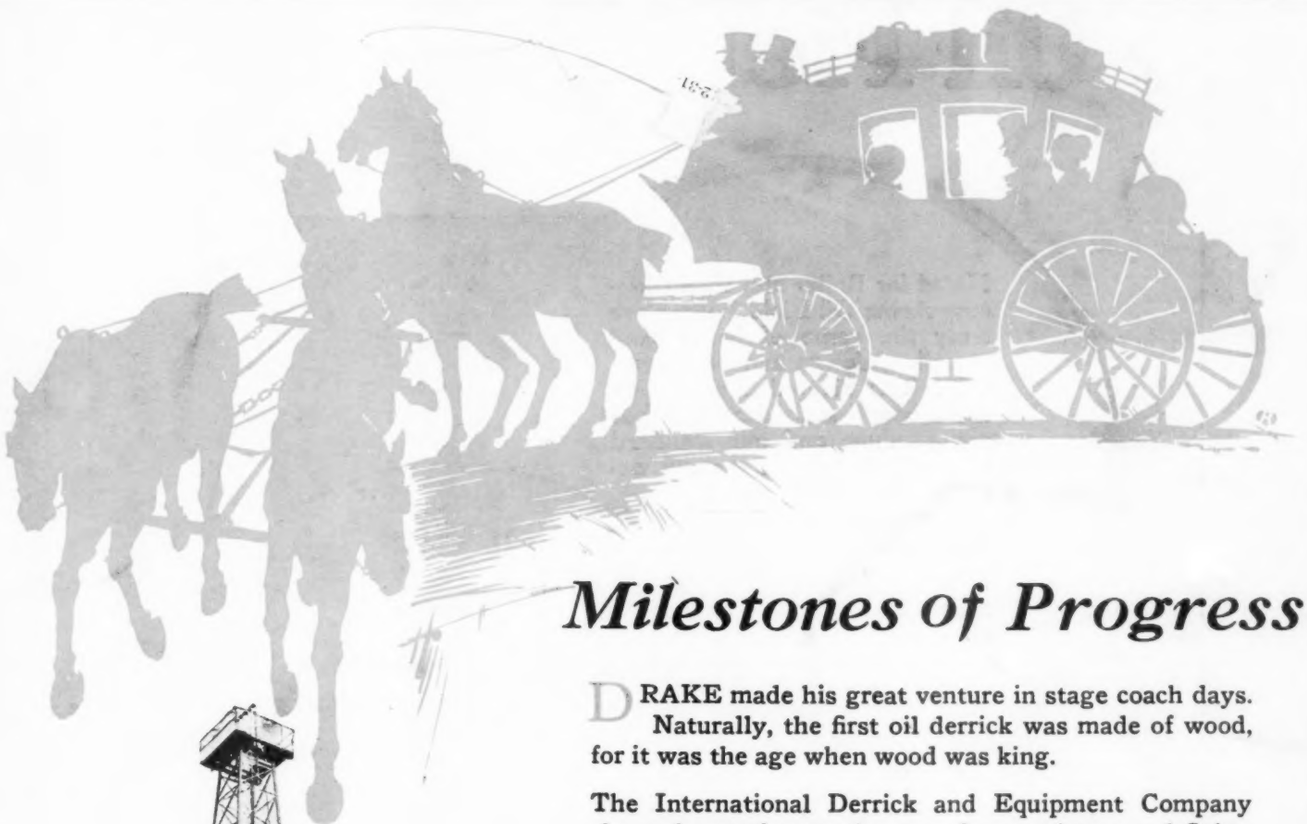

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The International Derrick and Equipment Company chose the steel age—the age of motor buses and flying machines—to introduce its first galvanized structural steel derrick. The innovation met with widespread approval because IDECO derricks are designed on the same sound principles which govern the construction of modern skyscrapers and bridges.

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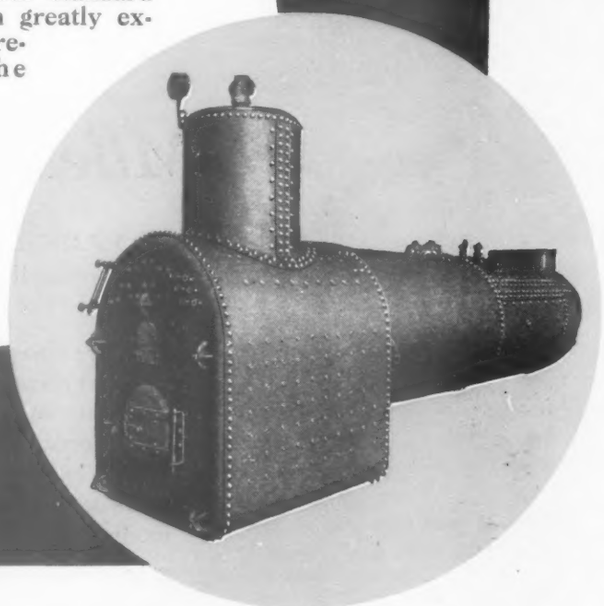

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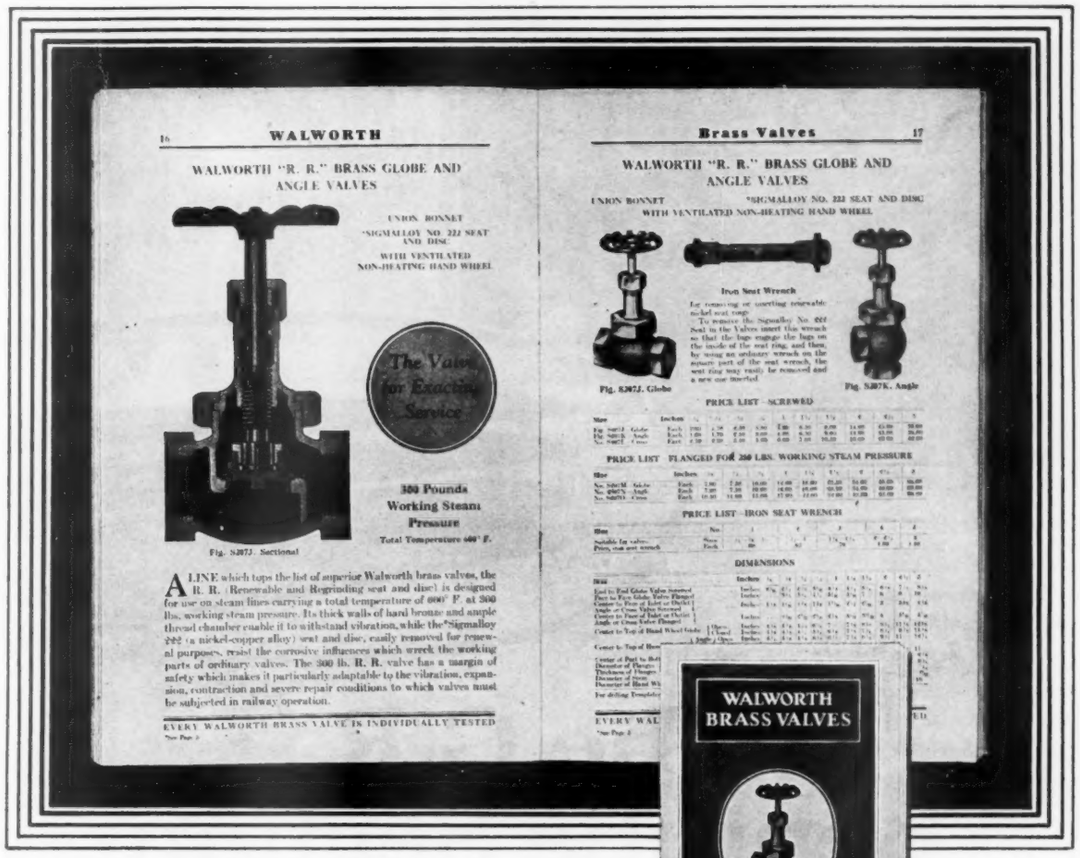
16 WALWORTH
WALWORTH "R. R." BRASS GLOBE AND ANGLE VALVES
UNION BONNET
*SIGMALLOY NO. 222 SEAT AND DISC
WITH VENTILATED NON-HEATING HAND WHEEL
The Valve for Exacting Service
300 Pounds Working Steam Pressure
Total Temperature 600° F.
Fig. 8207J. Sectional
A LINE which tops the list of superior Walworth brass valves, the R. R. (Renewable and Regrinding seat and disc) is designed for use on steam lines carrying a total temperature of 600° F. at 300 lbs. working steam pressure. Its thick walls of hard bronze and ample thread chamber enable it to withstand vibration, while the *Sigmalloy 222 (a nickel-copper alloy) seat and disc, easily removed for renewal purposes, resist the corrosive influences which wreck the working parts of ordinary valves. The 300 lb. R. R. valve has a margin of safety which makes it particularly adaptable to the vibration, expansion, contraction and severe repair conditions to which valves must be subjected in railway operation.
EVERY WALWORTH BRASS VALVE IS INDIVIDUALLY TESTED
Brass Valves 17
WALWORTH "R. R." BRASS GLOBE AND ANGLE VALVES
UNION BONNET *SIGMALLOY NO. 222 SEAT AND DISC
WITH VENTILATED NON-HEATING HAND WHEEL
Iron Seat Wrench
Fig. 8207J. Globe
Fig. 8207K. Angle
PRICE LIST—SCREWED
PRICE LIST—FLANGED FOR 250 LBS. WORKING STEAM PRESSURE
PRICE LIST—IRON SEAT WRENCH
DIMENSIONS
WALWORTH BRASS VALVES

All you need to know about Brass Valves

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WHERE to use brass valves . . . where not to use them . . . the difference between bronze and hard bronze . . . what Sigmalloy No. 222 is recommended for . . . all these questions are clearly explained in the new Walworth Brass Valve Booklet.

In addition, this booklet gives you all the details of the design, dimensions and prices of Walworth's line of High Grade Brass Valves, covering pressures from 125 to 350 lbs. at temperatures ranging up to 600° F. Sectional drawings in color, show the working parts of superior valves, built for exacting service. The book also contains further data on all the valves that Walworth makes, including brass, iron, steel-iron and Walworth Sigma Steel.

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The Oil and Gas Journal, issued weekly by The Petroleum Publishing Company, 114-116 West Second Street, Tulsa, Oklahoma. Subscription price $6.00 a year; 15 cents a copy. Entered as second-class mail matter December 15, 1911, at the post office at Tulsa, Okla., under the Act of March 3, 1879

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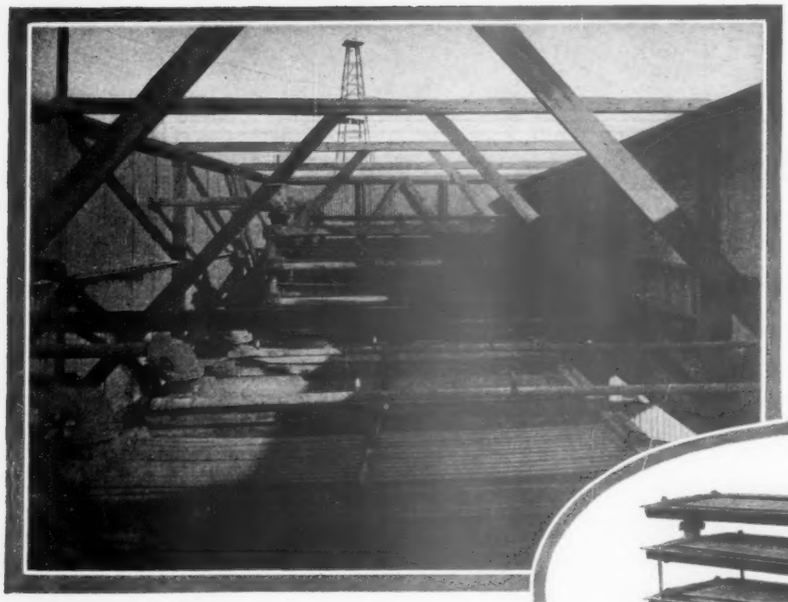
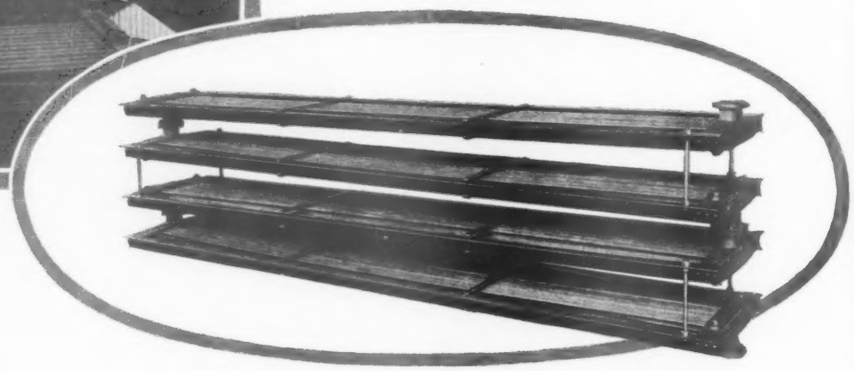


Typical Installation of G-R Bentube Sections



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maintains guaranteed capacity because of its exclusive scale-shedding feature that prevents heavy accumulation of scale.

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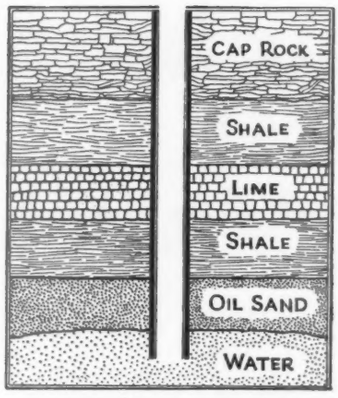
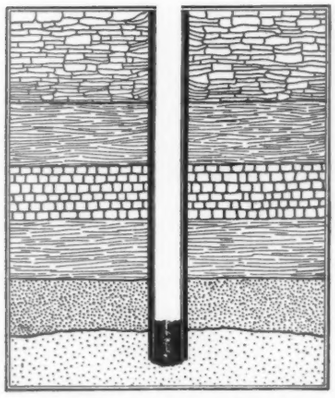


BEFORE PLUGGING



AFTER PLUGGING

FREE
Booklet

Eagle Lead Wool —an important factor *in the* conservation *of oil supply*

THE need of conservation of the country's oil supply is common knowledge. Waste is being carefully studied, ways and means of its elimination devised.

One of the usual causes of waste is bottom water. Yet this waste is largely unnecessary, because the oil industry now has a most effective means of shutting off this spendthrift.

Eagle Lead Wool shuts off bottom water completely. Wherever it has been tried, Lead Wool has had immediate acceptance because:

First, it is as easy and quick to handle as ordinary rope. In just a few minutes the special Cartridge Container is stuffed with Eagle Lead Wool and ready to drop into the well.

Second, it shuts off water immediately. Under pressure, the spongy lead wool is pounded out through the meshes of the container, filling every crack and water crevice, stopping the flow at once. It is permanent, cannot corrode.

Third, it is economical. Only as much lead wool as needed is used. There is no waste. And it is convenient to keep on hand for emergencies.

You can buy Eagle Lead Wool and Cartridge Container —in sizes for all casings—from your supply company. Or write direct to Eagle-Picher at Joplin. Free descriptive booklets on request.

The EAGLE-PICHER LEAD COMPANY
Chicago • Joplin • Cincinnati

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and Cartridge Containers

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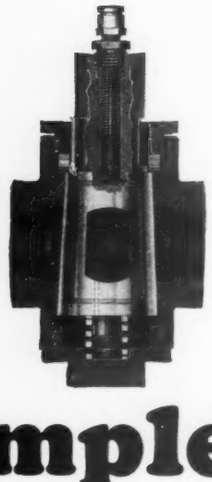

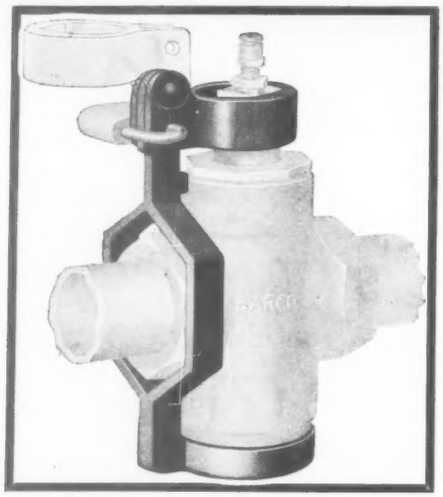

Simple locking attachment for the BARCO Lubricated Plug Valve

HERE'S a valve that turns instantly when you want it—full opening with a 90° movement —and resists all efforts to turn it when you lock it. The locking device locks both ends of the valve as well as the operating stem and is easily thrown back out of the way when not required. It cannot be detached without removing the valve from the pipe.

Barco plug valves are lubricated. Sticking and leaking are eliminated and positive quick acting advantages of the plug type are retained.

Our catalog on plug valves gives further facts. Ask for your copy.

See our exhibit in booths 116 and 117 at the 1928 Chicago Power Show, Feb. 14 to 18.

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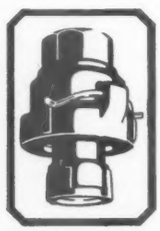
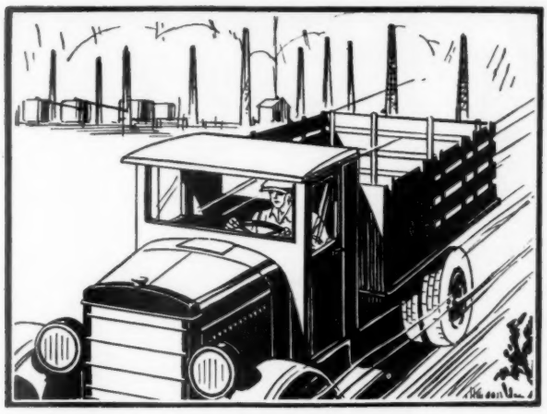
BARCO



Valves and Joints

OGJ1-12-Gray



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Casing needed in a hurry—fishing tools to be rushed in—new wells to offset—whenever there is a call for swifter, surer hauling, the new Heavy Duty Speed Wagon is ready.

The turbulence type cylinder head of the Heavy Duty Speed Wagon is your assurance that you will get the power you need. Four-speed transmission guarantees that you can put that power where you want it. Automatic chassis lubrication with the Myers Magazine Oiler means peak efficiency without extra attention. Six staunch cylinders set a faster pace when lost minutes cost thousands of dollars.

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HEAVY DUTY
Capacity up to three tons, Chassis $2185
Prices at Lansing

For the new Heavy Duty Speed Wagon is itself the product of a program of improvement that has never stopped since Speed Wagons first revolutionized hauling.

Try out the new Heavy Duty Speed Wagon today.

REO MOTOR CAR COMPANY
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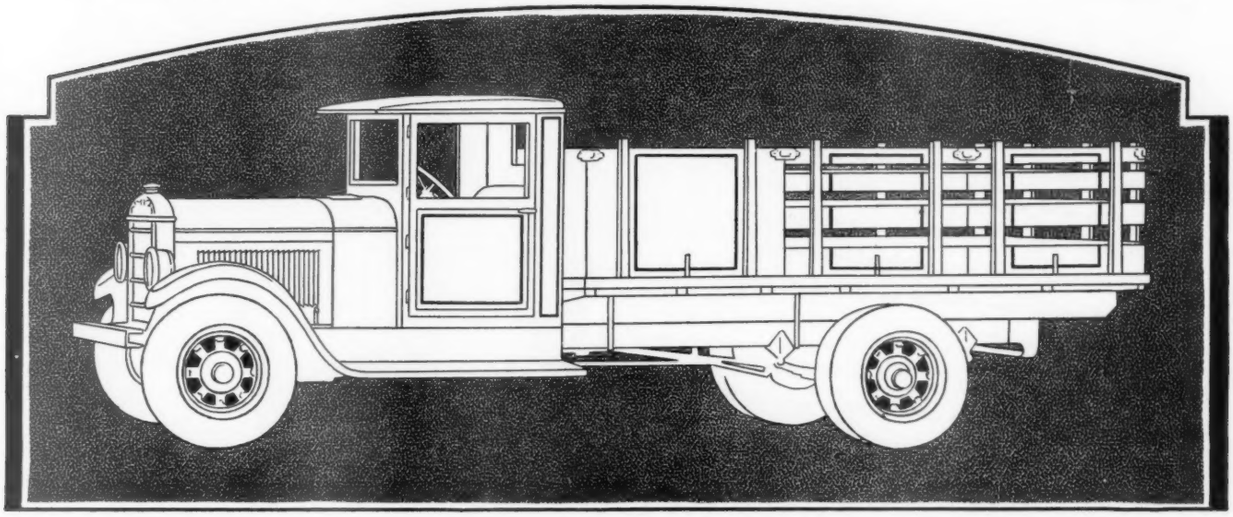

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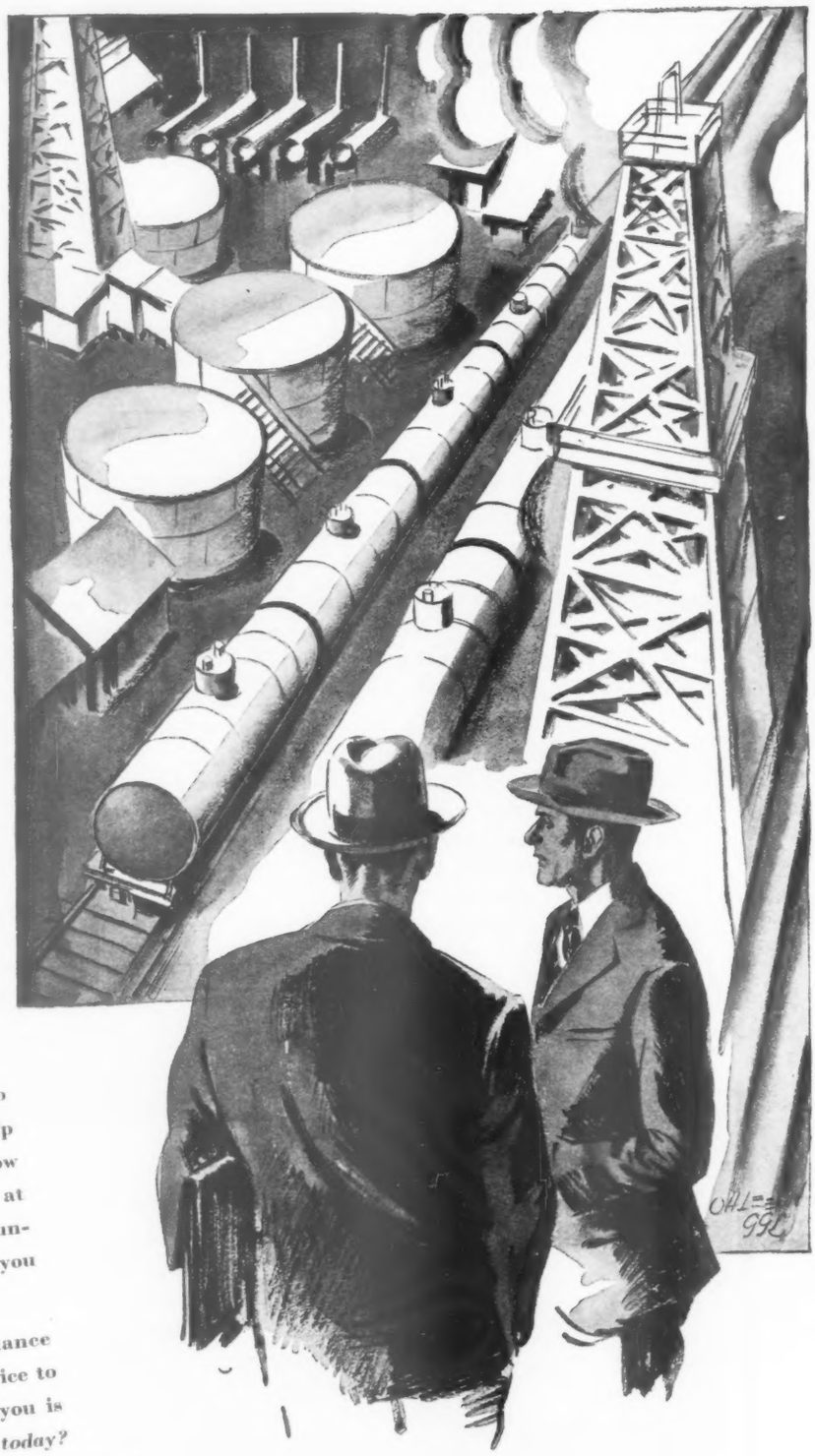

For 47 years Arco has devoted a greater part of its time and attention to the formulation of paints and protective products to defeat rust and to save millions of dollars being charged off each year as depreciation.

That we have succeeded in developing finishes particularly adapted to withstand the ravaging action of moisture, acids and alkalis is proved by the growing number of maintenance men who specify Arco as standard finishing and protecting products.

Along with the advancement of Arco products, we have built a staff of experienced maintenance engineers. In training these men, no time or money was spared to make them thoroughly informed on every phase of oil and gas maintenance.

Their knowledge will be invaluable to you. Feel free to call on them for help at any, and all times. No matter how large or small the job, somewhere, at some time, they have helped others unravel problems similar to the ones you are up against.

When may one of our maintenance engineers call to explain this service to you? Any time convenient for you is convenient for us. *Why not write today?*

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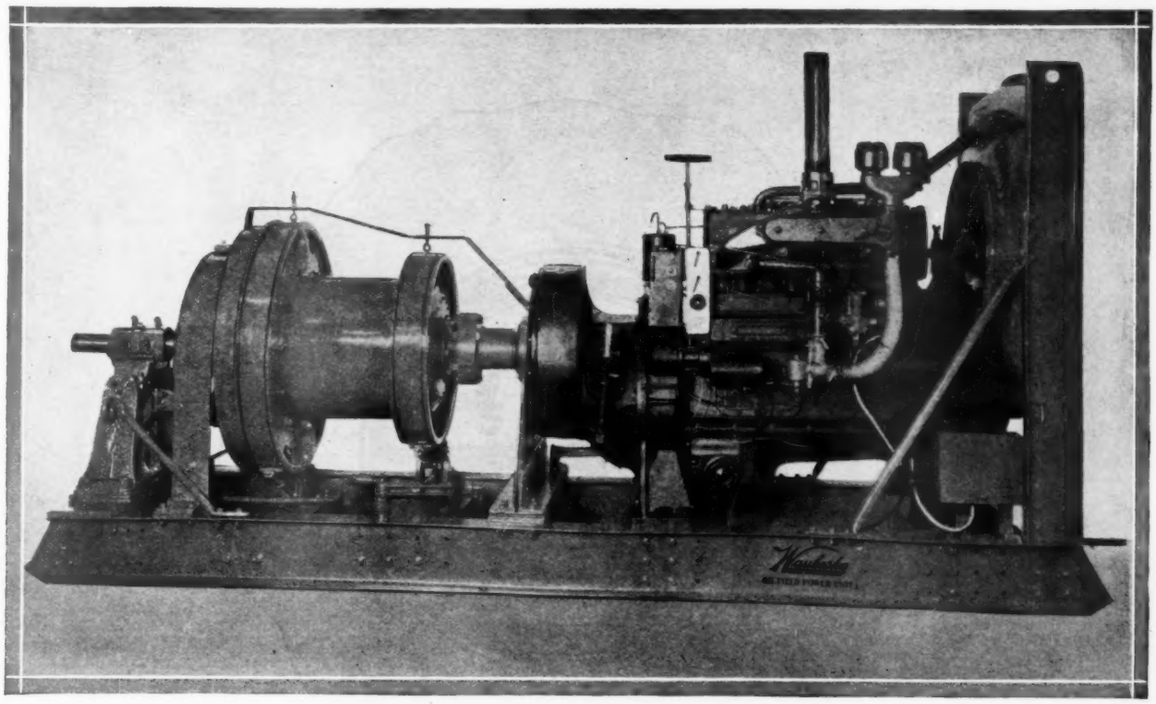
Save the surface and you save all — that's final.

ARCO

123

PAINTS · VARNISHES · ENAMELS · LACQUERS

Complete Waukesha Cable Tool Drilling Power Unit



P-772-XL

For Cable Tools Too

Waukesha 125 H. P. Oil Field Power Units are better known from their application to rotary drill rigs than to cable tool rigs. Three years experience with the latter, however, has proved the convenient portability and flexibility of Waukesha heavy-duty multi-cylinder gasoline engines for this purpose.

The complete unit shown above consists of a 125 H. P. Heavy-Duty Waukesha engine with huge stationary type radiator, insuring good cooling in hottest weather, a Waukesha tightly-enclosed Internal Reduction Gear running in oil and directly connected to a Bessemer Oil Bath Reversible Clutch. The latter is provided with an 18-inch face and 24-inch diameter pulley, that may be belted direct to the "Band Wheel." It also provides a 42-inch brake-drum for handling tools down to 3000 feet. Write for Bulletin 594 giving complete details.

P-807-L

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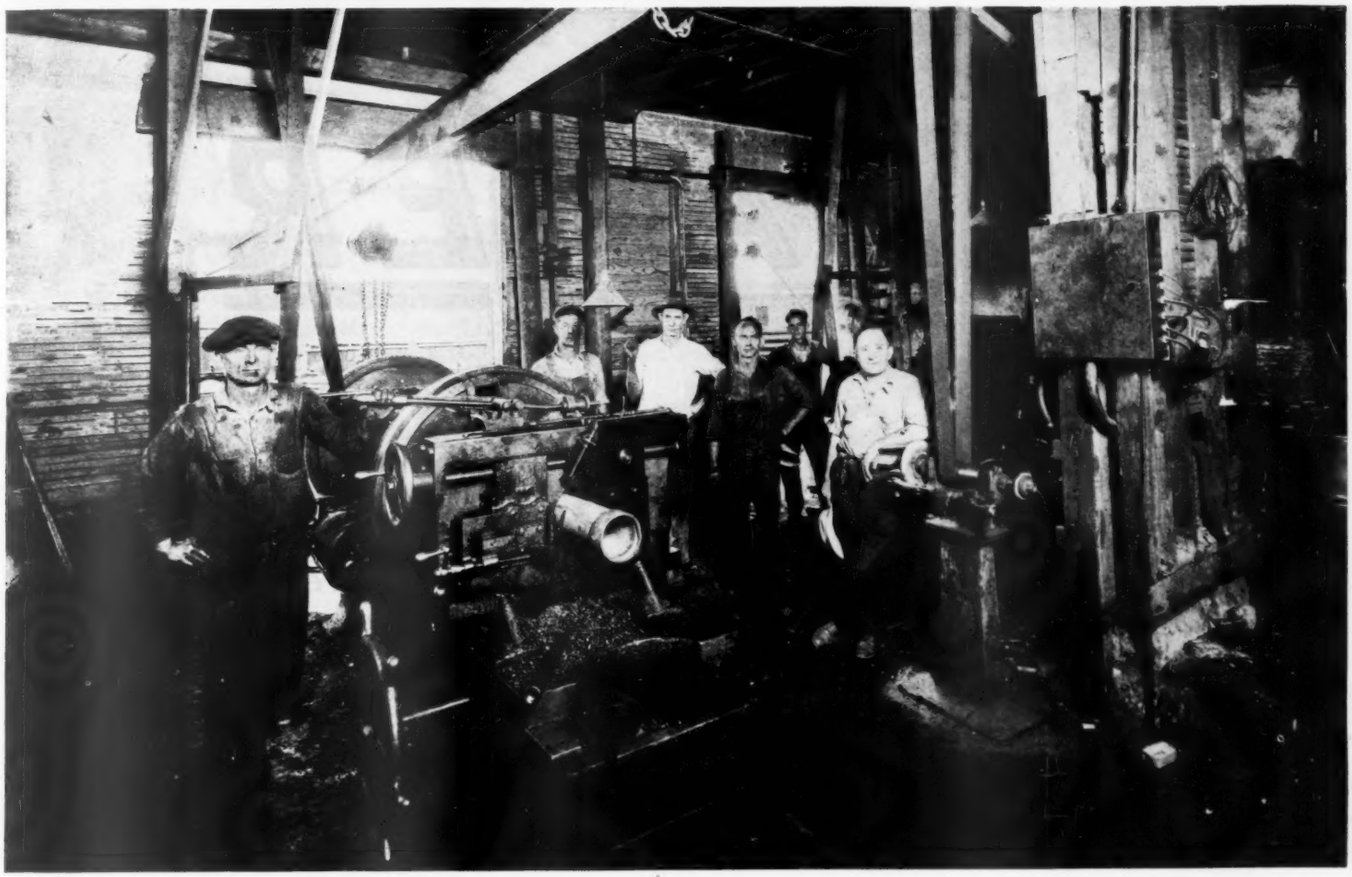

Ask any pipe man . . .

If you want to find out about B & K pipe threading machines, just go anywhere in the oil fields and ask a pipe man. For fifty years B & K machines have maintained a reputation for low cost and dependable service.

The men shown above are using a 3 inch Peerless and a 6 inch and 12 inch Duplex in the shop of the Goodyear Pipe & Supply Co. at Tulsa, Okla. All these machines are from the B & K line.

There are twenty distinct sizes and models of B & K pipe threading machines. Whatever may be your requirements, one of these will exactly meet them.

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CABLE TOOL CORE BARREL

—permits taking clean, unaltered cores, large enough in diameter and length to show the true characteristics of the formation.

Used with unvarying success in widely separated fields by many operators, this core barrel has brought cable-tool coring to the same high standard of accuracy and efficiency as obtained in rotary drilling.

Any experienced cable tool crew can use it successfully. It is extremely simple in construction and operation, and practically proof against failure.

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BASCO

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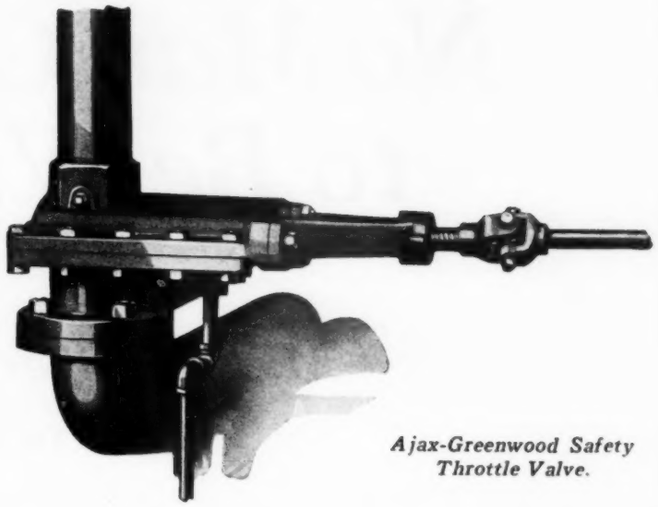
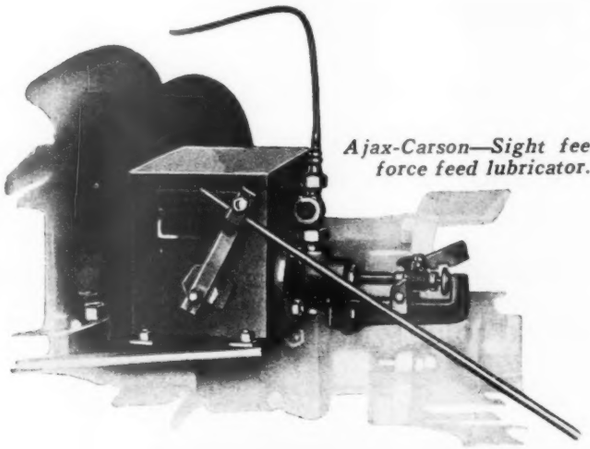
Two AJAX Accessories that make Any Steam Engine Better

Ajax-Greenwood Safety Throttle Valve

Many accidents have occurred in the past when steam pressure in drilling engine cylinders has built up and turned the engine over unexpectedly after the operator has shut off the power. The Ajax-Greenwood Safety Throttle Valve prevents this by automatically bleeding the steam chest and manifold.



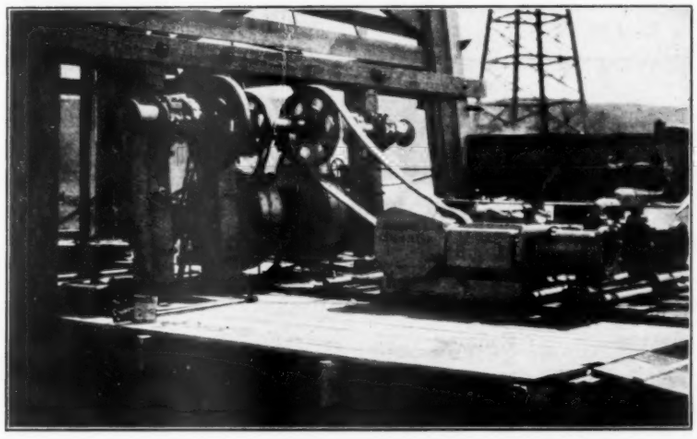
Ajax-Greenwood Safety Throttle Valve.



Ajax-Carson—Sight feed—force feed lubricator.

Ajax-Carson Lubricator

The Ajax-Carson Lubricator is positive in action—valveless—free from trouble. It runs at the same rate as the engine, forcing more oil into the steam line as speed is increased. Sight feed shows oil in motion, not simply a reservoir.



Ideal-Ajax twin engine at Cushing, Okla., equipped with Ajax-Carson Lubricator and Ajax-Greenwood Valve.

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AJAX IRON WORKS
Corry, Pa.

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THE NATIONAL SUPPLY COMPANIES

In every oil field

AJAX ENGINES

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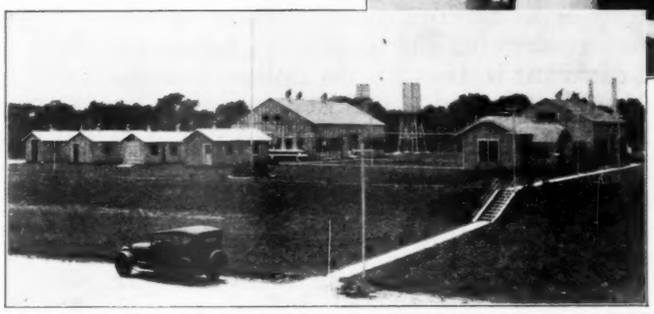
Below: Owasso Plant, Oklahoma Natural Gas Company.



Above: Interior View of Owasso Plant, Oklahoma Natural Gas Company.

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Bitulumin although widely used for painting oil storage is equally efficient on tank cars, metal buildings, refinery equipment, still towers, water tanks, bridges, etc.

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"Brought up" and developed in the Oil Fields by oil men, for oil men, the Bessemer Type O. F. is an oil man's power plant in every sense of the word—simple, staunch, reliable, and economical.

Bessemer Oil Field Engines assure the utmost value from your oil field power equipment dollars, as you can prove to your own satisfaction by investigating their performance records.

THE BESSEMER GAS ENGINE COMPANY
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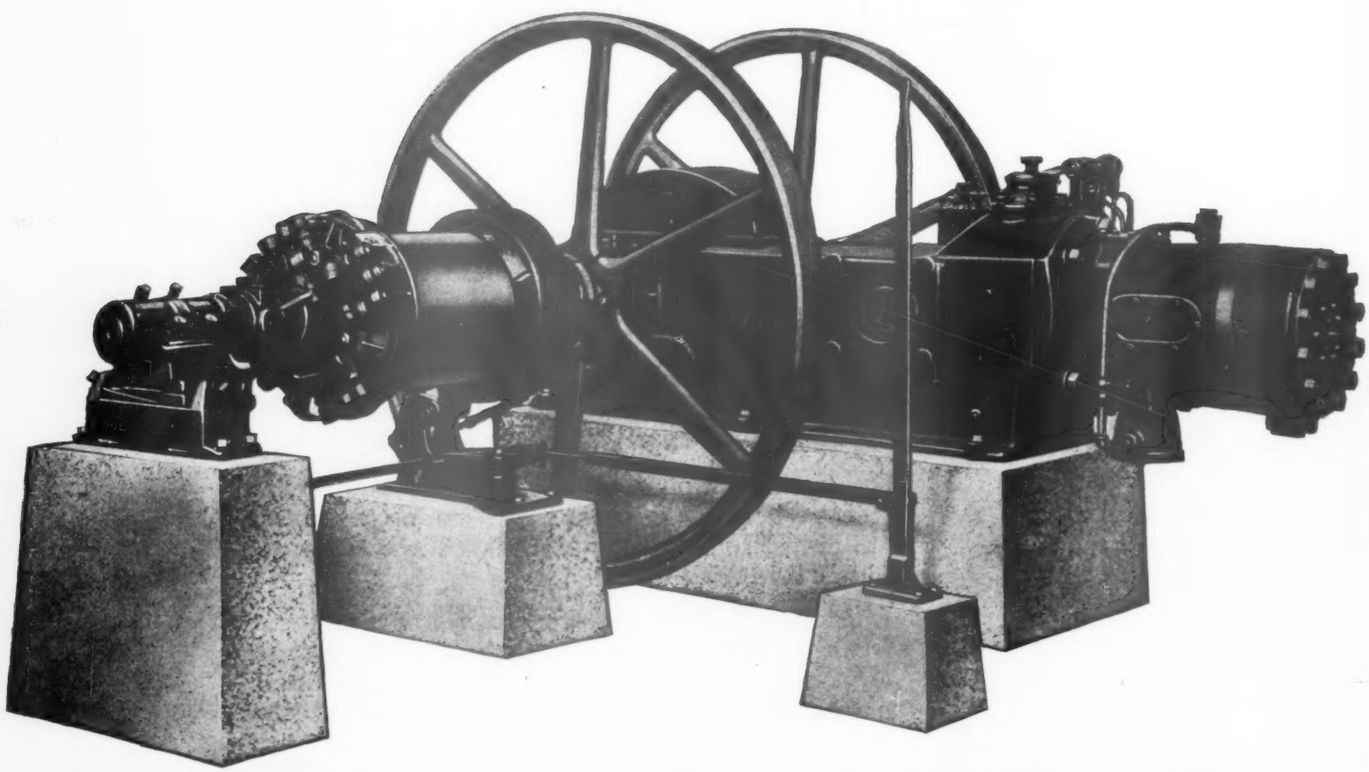

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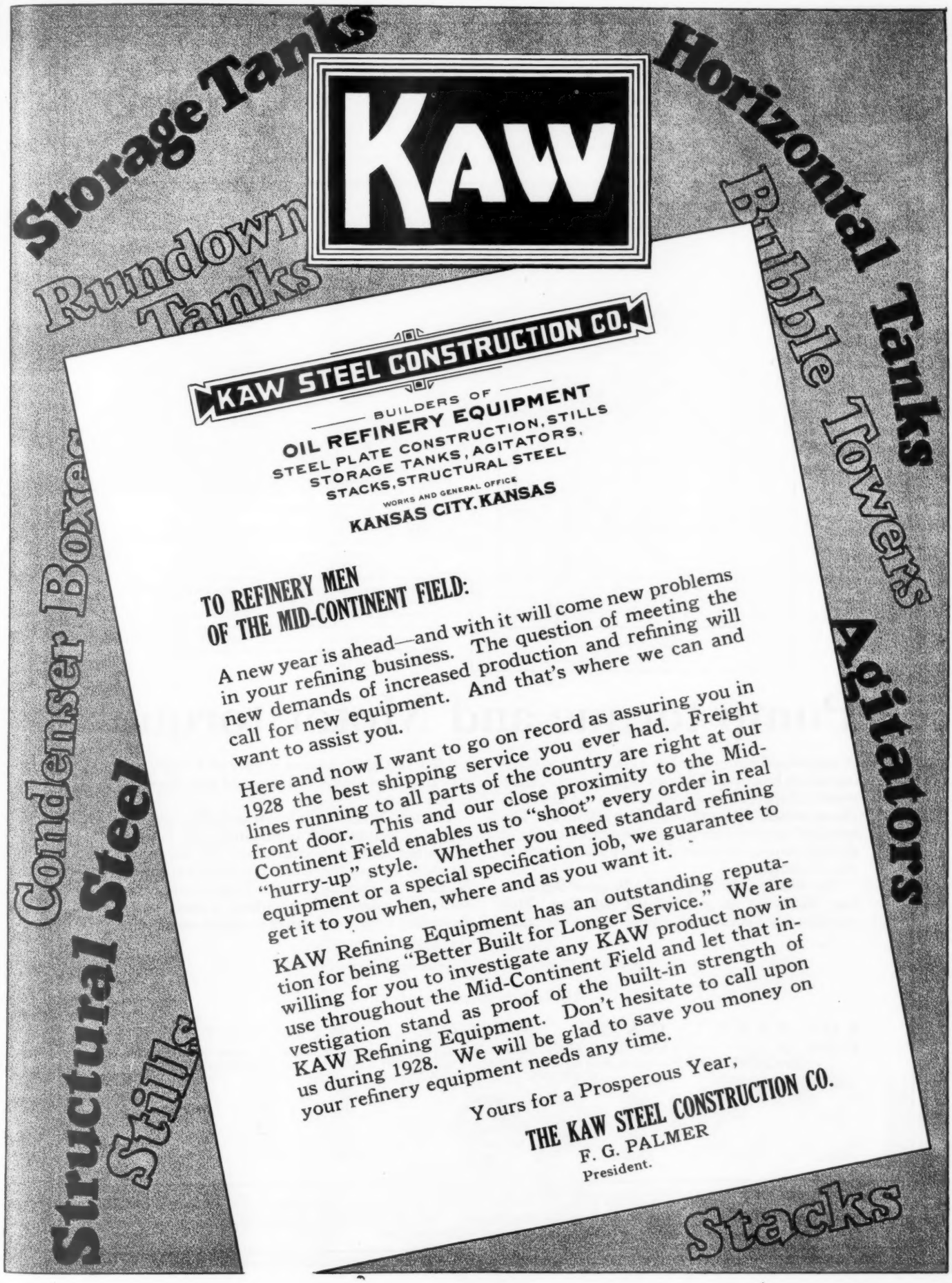
BESSEMER OIL FIELD ENGINES – COMPRESSORS VACUUM PUMPS – ROLLER PUMPING POWERS



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STORAGE TANKS, AGITATORS,
STACKS, STRUCTURAL STEEL

WORKS AND GENERAL OFFICE
KANSAS CITY, KANSAS

TO REFINERY MEN OF THE MID-CONTINENT FIELD:

A new year is ahead—and with it will come new problems in your refining business. The question of meeting the new demands of increased production and refining will call for new equipment. And that's where we can and want to assist you.

Here and now I want to go on record as assuring you in 1928 the best shipping service you ever had. Freight lines running to all parts of the country are right at our front door. This and our close proximity to the Mid-Continent Field enables us to "shoot" every order in real "hurry-up" style. Whether you need standard refining equipment or a special specification job, we guarantee to get it to you when, where and as you want it.

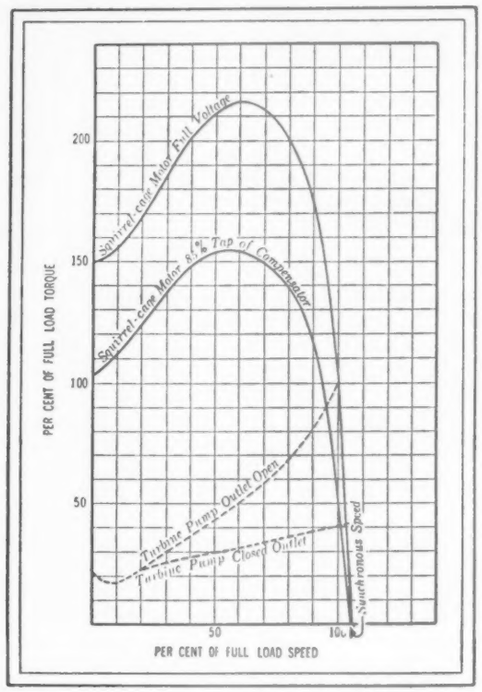
KAW Refining Equipment has an outstanding reputation for being "Better Built for Longer Service." We are willing for you to investigate any KAW product now in use throughout the Mid-Continent Field and let that investigation stand as proof of the built-in strength of KAW Refining Equipment. Don't hesitate to call upon us during 1928. We will be glad to save you money on your refinery equipment needs any time.

Yours for a Prosperous Year,

THE KAW STEEL CONSTRUCTION CO.
F. G. PALMER
President.

APPLICATIONS

This is one of a series of advertisements describing the proper application of alternating current motor types. Complete series will gladly be sent upon request.



SPEED-TORQUE CURVES

To start an idle turbine pump requires about 20 per cent of the torque required to run it at full load. As the pump gains in speed the torque gradually falls, until the speed is 10 per cent of full load speed. Above this point, the torque required by the pump with either open or closed discharge, increases with the pump's speed.

The capacity of an induction motor starting on full voltage is 150 per cent of full load torque, and the torque increases up to 60 per cent of full load speed; at higher speeds the motor torque varies as the speed increases. When the motor is in synchronism with the alternators producing the current, the speed is above full load motor speed and motor torque is zero.

The actual torque delivered by an induction motor driving a pump, is the sum of the torque requried to run the motor idle, plus the torque required to run the pump, and this sum cannot at any speed exceed the full voltage torque curve shown.

Pump torque and Motor torque

A centrifugal pump requires a low torque at starting which however builds up rapidly as the pump nears full speed. Its torque curve (given above) is characteristic of a number of applications. The standard squirrel-cage motor, the simplest type of electric motor, is admirably adapted to loads of this character.

The rotating element in the Wagner Squirrel-cage Motor is an uninsulated winding. This winding may consist of copper bars electrically welded to rigidly braced copper end rings, or it may consist of aluminum bars and end rings cast in one piece.

The new Wagner High-reactance Squirrel-cage Motor, in ratings up to and including 20-hp., may be started without compensator, by connecting directly across-the-line, without exceeding N. E. L. A. starting current limitations. Larger sizes may be used with or without a compensator depending upon local power company regulations.

WAGNER QUALTIY

Alternating Current Motors — Wagner builds them all

Literature upon request

SQUIRREL-CAGE MOTOR APPLICATIONS

PUMPS — all types · · FANS, BLOWERS — (Sleeve bearings are used on these motors to insure quiet operation.)
MACHINE TOOLS — line shafting and individual drive · · AIR, GAS and other COMPRESSORS
STOKERS · · CONVEYERS

Wagner Quality

WAGNER ELECTRIC CORPORATION — 6400 Plymouth Avenue — St. Louis, U. S. A.

Products: MOTORS—Single, Polyphase and Fynn-Weichsel Motors TRANSFORMERS—Power, Distribution and Instrument
FANS—Desk, Wall and Ceiling types

61-7637-3

ACCURATE

UNIFORM

Fitting Pipe for Re-Run

There are only two standards for threading casing, Briggs and A. P. I. The Smithsteel Couplings are threaded absolutely accurate to either one or the other of these standards according to specification. Pipe cut to fit the Smithsteel Coupling automatically gives you the standard with resulting accurate thread engagement.

When the re-conditioned pipe is put on the rack for re-running, this accurate thread engagement and the uniform Smithsteel wall thickness makes running the casing easier and safer.

That is why many oil companies are specifying Smithsteel Couplings on all reconditioned pipe and why many machine shops are adopting Smithsteel Couplings for all pipe that they re-condition.

If you have not used them, send for our new booklet "Smithsteel Couplings," and you will see why they have become the standard for use on both new and re-conditioned pipe for casing.

A. O. SMITH CORPORATION

Oil & Gas Field Products Division

General Offices—Milwaukee, Wis.
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SMITHSTEEL COUPLINGS

The Standard of the Oil Fields for Reconditioning Pipe

Reid Engines

New 40 and 45 H. P. Two Cycle Gas Engines, Enclosed Type

Entirely enclosed bed plate—Splash Oiling System—Replaceable main bearings—Bored cross-head guide—New Reid governor, enclosed and running in oil bath—New intake valve on top of cylinder—Improved speed wheel arrangement—Detachable cylinder head—Greater power and economy—Unprecedented speed range. Ideal for heavy duty reverse work. *Descriptive Bulletin No. 37 on request.*

We maintain Engineering Crews all over the Mid-Continent for the installation of Reid Powers and related equipment. Estimates without obligation.

Axelson Machine Co.
Sucker Rods, Pull Rods, Plunger Working Barrels (Pumps) etc.

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Gas and Oil Engines, two and four-cycle, Band Wheel and Direct Drive Pumping Powers.

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Manila Cordage, including Frick-Reid Manila Bull Ropes—same quality for ten years.

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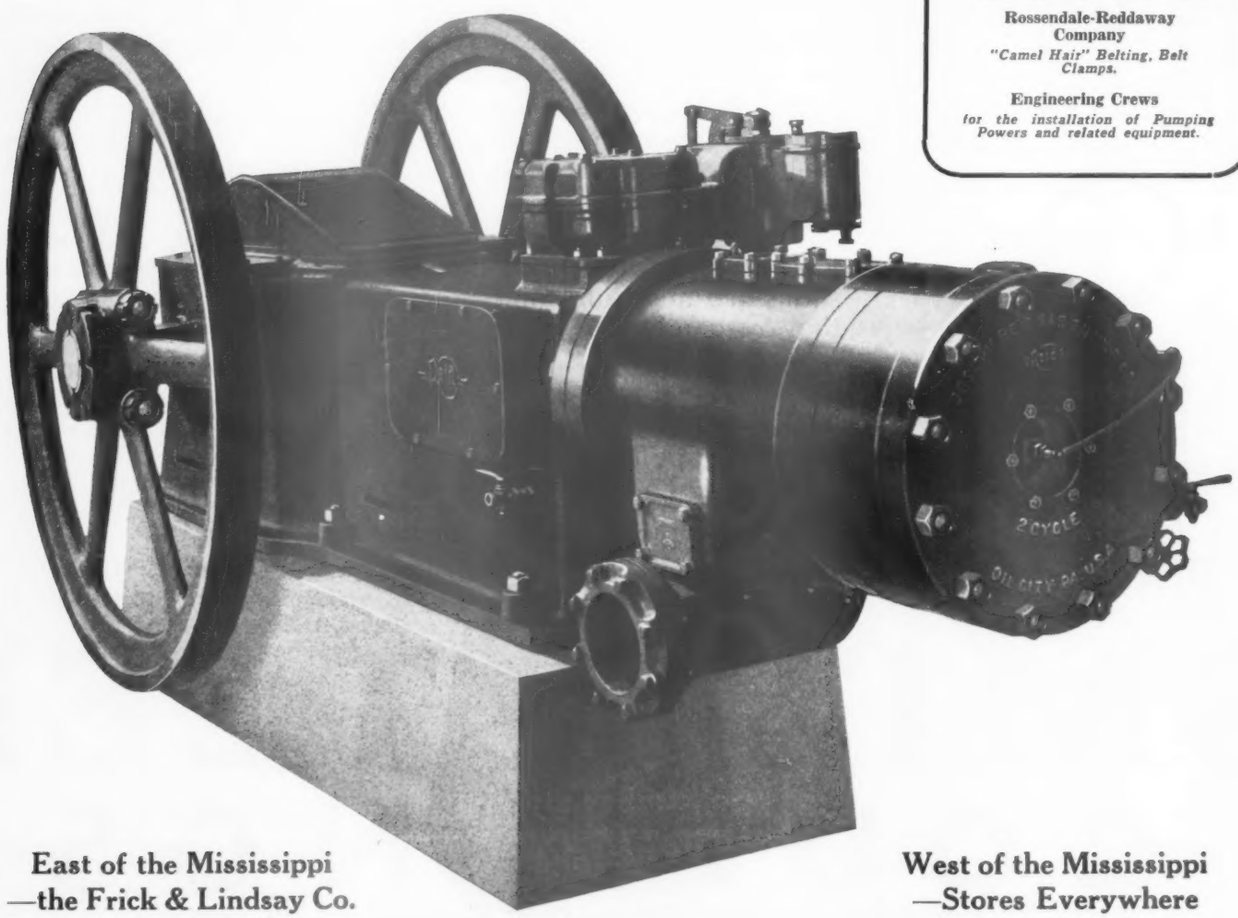
Valves, Fittings and Tools for Steam, Water, Gas, Oil and Air.

Rossendale-Reddaway Company
"Camel Hair" Belting, Belt Clamps.

Engineering Crews
for the installation of Pumping Powers and related equipment.

Frick-Reid Supply Co.

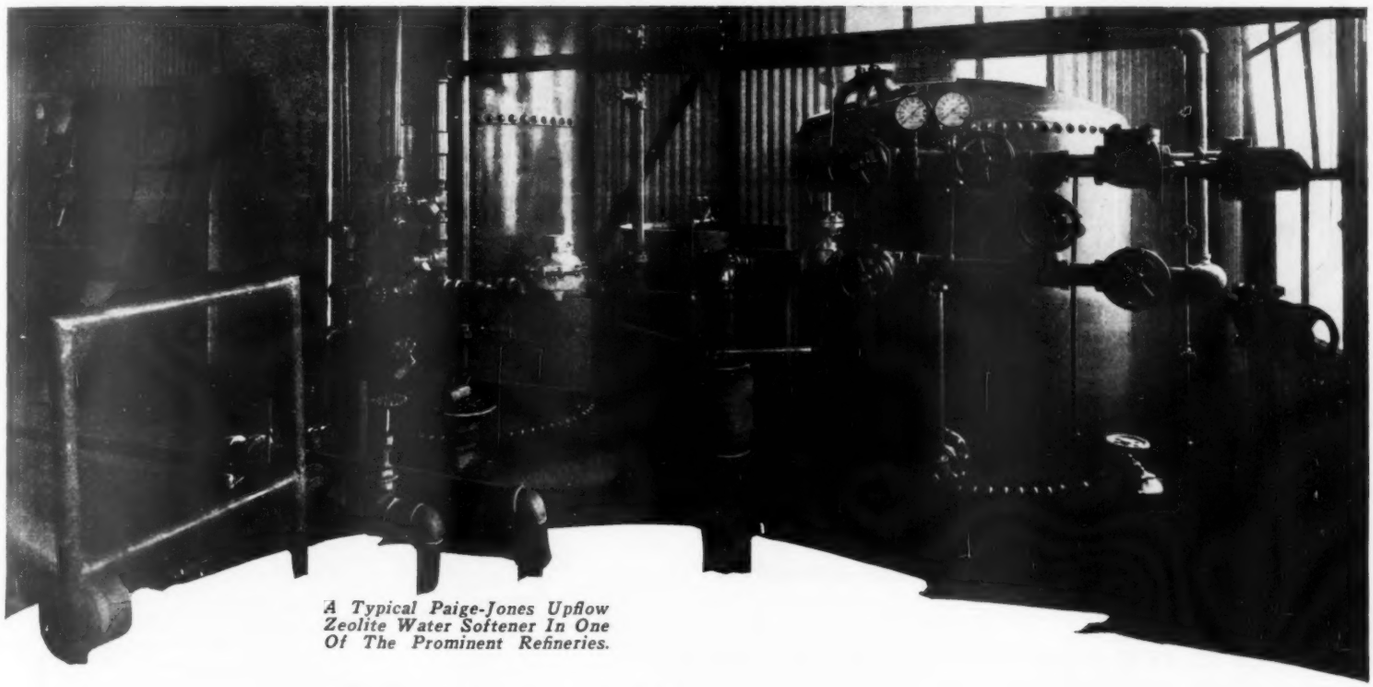
Tulsa—Pittsburgh



East of the Mississippi —the Frick & Lindsay Co.

West of the Mississippi —Stores Everywhere

How to *Avoid* Engine Head *Failures*



A Typical Paige-Jones Upflow Zeolite Water Softener In One Of The Prominent Refineries.

Cooling water has its bad features.

If water deposits scale in the jackets, its good features are progressively nullified. The dangers of cracked cylinder heads multiply.

Why not eliminate scale formation—avoid engine head failures?

Many companies in the oil fields have taken steps to protect their operations by installing the Paige-Jones Upflow Zeolite Water Softeners.

—because softened water does not deposit scale.

Paige-Jones has the softening equipment for your cooling system, whether it involves one engine or a battery.

For further details, send for our new illustrated bulletin—"Softened Water — The Universal Need."

Be Assured of Paige-Jones Economies

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Paige-Jones Service Includes

Rapid-Rate, Upflow Zeolite Water Softeners
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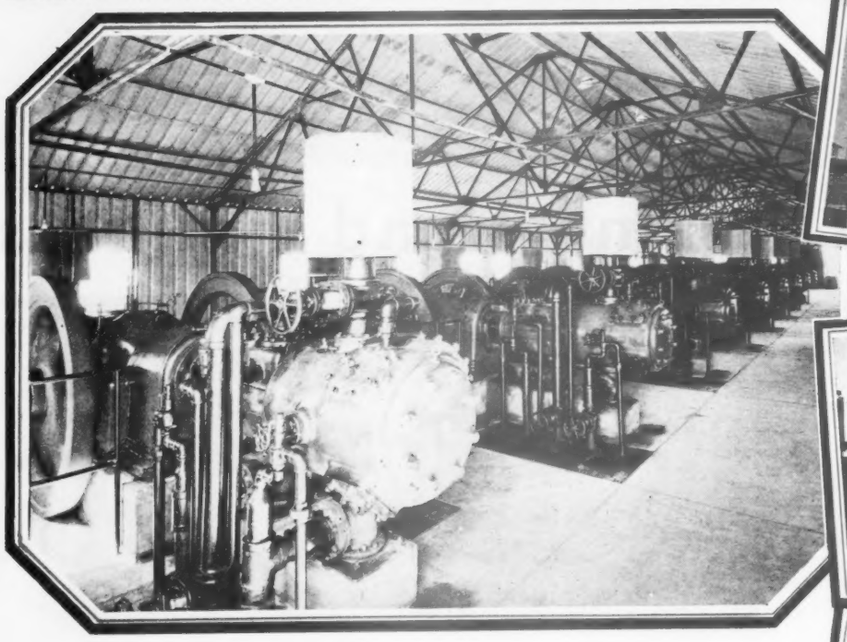
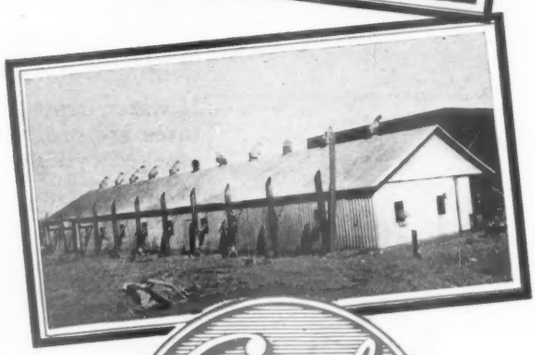
Lime-Soda Softeners
Boiler Feed Treatments
Gravity and Pressure Sand Filters
Household Water Softeners

PAIGE & JONES WATER SOFTENING

ZEOLITE AND LIME SODA SOFTENERS · PRESSURE SAND FILTERS
BOILER FEED WATER TREATMENTS · HOUSEHOLD WATER SOFTENERS





CLARK SUPER 2's
SAVE FUEL!

The CLARK Super 2-Cycle Compressor—which recently introduced the new idea of force-feed of fuel into the engine cylinder by means of our Fuel Injector—has demonstrated its ability to develop a given horse-power on *one-third less fuel.* The result is a compressor that combines the simplicity of 2-cycle design with the fuel economy of 4-cycle operation.

The recently completed plant here shown is that of the Eastland Oil Company, at Crane, Texas. Equipment is eight 90 H.P. CLARK Super 2-Cycle Tandem Compressors.

You can't afford *not* to investigate so great a fuel saving.

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CLARK

Now

better service than ever before

The oil producing industry demands quick service. Equipment and crews must be kept on the job. Perhaps there is no place in the world where work is carried on at higher pressure than in drilling a new oil well.

This announcement has an important message to every purchaser of supplies in the Mid-Continent Oil Fields. It means for him better service than ever.

Crescent Brand Wire lines and Tru-Lay Brand Preformed Wire lines in the Mid-Continent Oil Fields are now available through the following supply companies:

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MARION MACHINE, FOUNDRY & SUPPLY COMPANY, Tulsa, Okla.
THE FARLEY MACHINE WORKS COMPANY, Arkansas City, Kansas
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"The Application of Wire Rope to Oil Field Equipment" is an instructive handbook prepared especially for oil field wire rope users. Your name and address will bring a copy of this book and specific information on your own particular problems.

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[REG. U. S. PAT. OFF.]

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The over production of Seminole was brought about largely by the use of the most modern methods of drilling, producing and cementing that science has yet devised. This is true conservation.

HALLIBURTON OIL WELL CEMENTING CO.
Duncan, Oklahoma

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--malleable iron fittings are *different*!

Constructed of close grained, black heart iron, especially suitable for pipe fittings. Tensile strength of this material averages about 42,000 pounds to 43,000 pounds per square inch. It is sufficiently ductile to withstand piping strains without breakage, and its close grain and freedom from casting defects make it an ideal container for fluids under pressure through ranges of temperature for which it is recommended.

We offer a complete line of Walworth Malleable Fittings in three weights: Standard 125-lb. Working Pressure, Extra Heavy 250-lb. Working Pressure and a special 175-lb. Working Pressure fitting for refinery use.

When next you order Malleable Fittings give this quality line a trial.

"If CONTINENTAL Sells It, There Is No Better"

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Refinery Section Starts on Page 122

Increased Output This Week Probable

Highest daily average estimated total production in 1927, week ended July 30, 2,587,105 bbls. Lowest in 1927, Jan. 22, 2,360,789 bbls.

Big Decline Due Chiefly to Cold Weather With Losses Partially Regained. Outlook Showing Improvement

By Andrew M. Rowley

Highest daily average estimated light oil production in 1927, week ended July 30, 2,102,385 bbls. Lowest in 1927, Jan. 1, 1,790,729 bbls.

Cold weather was responsible last week for the largest decrease in crude oil production registered since June, 1925 when the Smackover Field in Arkansas started its sensational decline. However, while the drop aided the general situation while it lasted, many of the fields have recovered part of the loss and a substantial increase in production may be expected this week. Seminole, which recorded a decrease of 24,000 barrels daily last week, has been holding around 350,000 barrels daily this week, an increase of 13,000 barrels a day over last week's average, while the Hendricks Pool in Winkler County, Texas, credited with a daily average last week of 63,000 barrels, is now making between 75,000 and 80,000 barrels.

Another substantial decline probably will be registered at Seminole within the very near future. Wells in that area, except the wildcats pinched in under agreement, are being produced at their maximum and it seems as if the 350,000 barrels-a-day figure will be hard to maintain very long.

The water situation in West Texas is attracting widespread attention as any serious encroachment of water in that area will be the most important factor in the general situation. Many operators already are revising downward their estimates of ultimate production from West Texas but it is rather early to form definite conclusions as to the significance of water showings there.

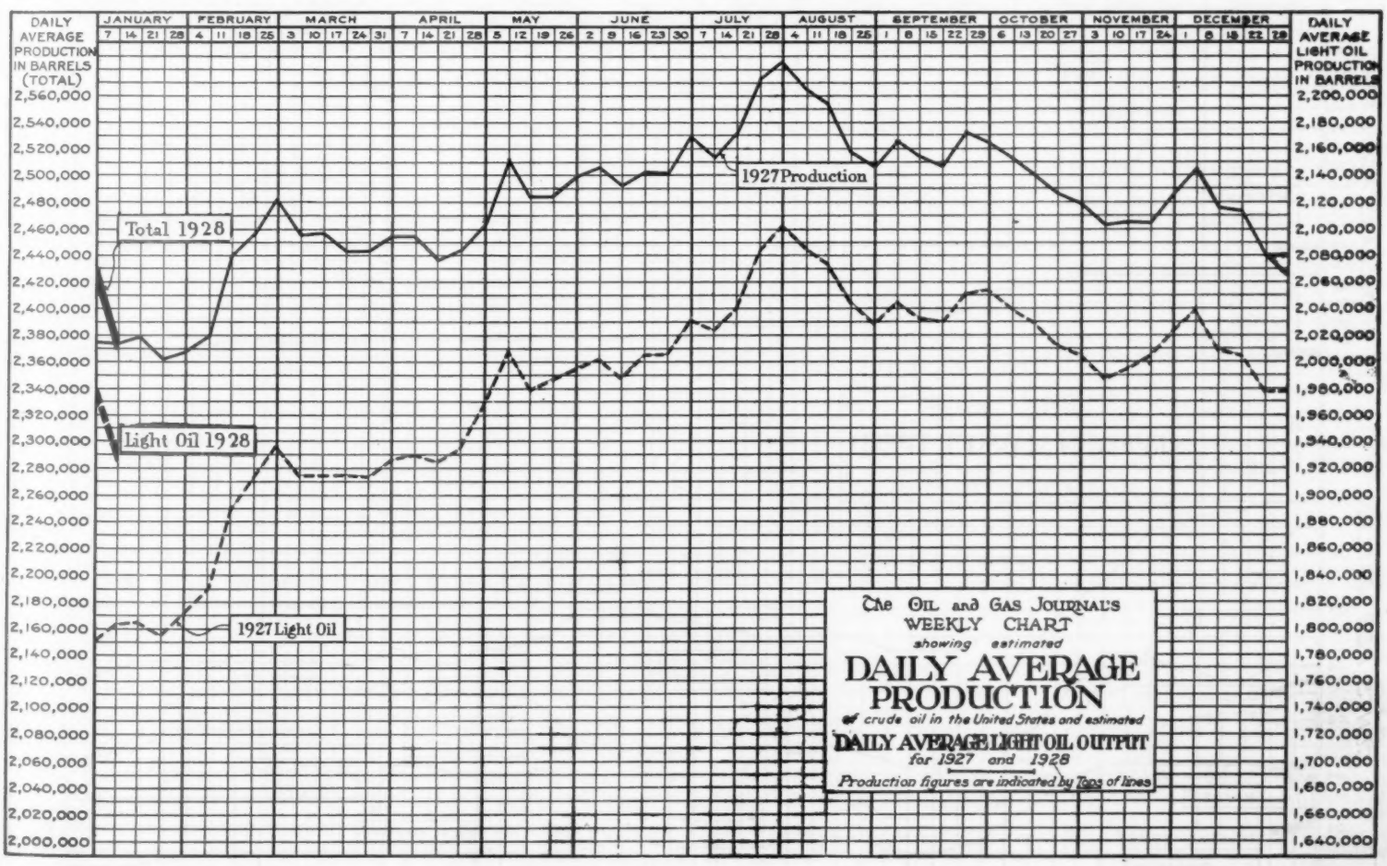
Less talk is heard of an immediate increase in crude oil prices, operators seeming to realize premature action of that kind might result in a return to conditions which obtained during a great part of last year. An increase in prices might make it difficult to continue the drilling curtailment at Seminole, whereas, if that agreement is maintained until March 1, it is believed the situation will have improved to such an extent conditions will be far better early in the summer and the whole industry will enjoy greater prosperity.

PRODUCTION IN THE UNITED STATES

Estimated daily average production of light and heavy gravity oil in the United States for week ended January 7, and a comparison with the previous week follows:

	Jan. 7		Dec. 31	
Oklahoma—	Light	Heavy	Light	Heavy
Tonkawa	14,985	.....	15,115	.....
Burbank	37,015	.....	38,565	.....
Other Osage Fields	29,755	.....	29,620	.....
Cushing and Shamrock	20,985	.....	21,030	.....
Bristow and Eastern Bristow	24,455	.....	24,515	.....
Cromwell	10,540	.....	10,570	.....
Garber	10,110	.....	10,415	.....
Blackwell-Braman	8,620	.....	8,710	.....
Seminole	337,915	.....	361,740	.....
Wewoka	8,970	.....	8,945	.....
Northern Miscellaneous	111,785	.....	112,050	.....
Southern Fields	59,940	.....	60,210	.....
Total Oklahoma	675,075	.....	701,485	.....
North Louisiana	36,985	7,620	38,765	7,855
Arkansas	21,140	69,000	22,200	71,170
North Central Texas	129,040	.....	134,390	.....
West Texas	260,758	.....	267,068	.....
Texas Panhandle	76,670	.....	80,235	.....
East Central Texas	28,864	.....	27,149	.....
Kansas	107,310	.....	107,815	.....
Total Mid-Continent Area	1,335,842	76,620	1,379,107	79,025
Gulf Coast	.....	126,315	.....	134,049
Southwest Texas	.....	27,170	.....	27,421
Eastern	111,000	.....	111,000	.....
Rocky Mountain Area	77,718	.....	75,697	.....
California—				
Santa Fe Springs	38,500	.....	38,000	.....
Long Beach	119,000	.....	118,000	.....
Torrance	3,000	17,000	3,000	17,000
Huntington Beach	60,000	.....	60,000	.....
Dominguez	13,750	.....	13,750	.....
Rosecrans	8,500	.....	8,750	.....
Inglewood	19,500	12,000	19,500	12,000
Ventura Avenue	52,000	.....	51,500	.....
Seal Beach	40,000	.....	42,000	.....
Remainder of State	55,000	186,000	54,000	186,000
Total California	409,250	215,000	408,500	215,000
Total United States	1,933,810	445,105	1,974,304	455,495
Grand Total	2,378,915		2,429,799	

→ **Total Decrease, 50,884 Bbls.; Light Oil Decrease, 40,494 Bbls.** ←



Refinery Gasolines Fail to Rally

Additional Concessions Given by Oklahoma Refiners. Some Companies Storing Part of Output. Fuel Oils Stronger

By W. T. Zeigenhain

As no material increase in the movement of refined oils was shown following the dull holiday season, a further weakness developed in the Oklahoma gasoline market during the past week. While many refiners were not willing to sell for immediate shipment at prices below 6 cents and are not meeting competition in the territory outside of Oklahoma, their stocks are increasing. In this action they are carrying out a program of storing gasoline for the coming season rather than attempt to balance their production and sales. Outside of the local market, abnormally low prices continue to be quoted. Because some refiners are desirous of storing gasoline and are accepting only orders carrying a price of 6 cents or better while plenty of material is available from other refineries at very low prices, there is a relatively wide price range for the week.

Natural gasolines were in better demand, and while prices remained the same for the better grades, with only slight increases shown on the cheaper grades, there was a chance for the whole market to advance fractionally within another week. Export shipments to Louisiana have been expedited and have given full relief to all manufacturers at present. As the present export orders are filled, it is problematical as to what will develop over the last half of the month, but manufacturers are generally more optimistic about the future of their market. Natural gasoline manufacturers feel their worst conditions are past and as Seminole gradually ceases to be the dominating factor in their low market, due to the great volume of gasoline made there, prices are due to advance, regardless of the refined oil market.

As no export orders for kerosene were received and the domestic consumption remained at low ebb, prices remained at last week's level with slight concessions being given on the high sulphur material. The lesser production of kerosene, due to many refiners making a high gravity furnace oil, has helped to hold kerosene prices at their present level and as the spring plowing season opens in the Midwest, this market may be expected to strengthen. The lighter gravity distillates and the low cold test transparent gas oils were in good demand and prices were generally higher. During the recent cold weather and the resultant depletion of jobbers' stocks over the holidays, there was an urgent demand for furnace oils for immediate delivery. Refiners specializing in their manufacture said this business represents a good share of the total shipments at present.

Fuels Stronger

Gas oil prices remained unchanged and refiners were continuing to decrease their stocks by offering high gravity fuels as a blend of their regular low gravity fuels and gas oil. Cracking operations are being carried on at a normal rate and refiners are balancing their operations to run up all of their gas oil production but are not pushing cracking operations because of the weak gasoline market. Fuel oils are a trifle stronger in that none of the 67½-cent material was available and refiners who had been quoting 70 cents were able to sell a portion of their pro-

(Continued on Page 138)

REFINED MARKET BAROMETER

The expected strength in the refined oil market failed to materialize following the holiday slump and the general market was quiet in all refinery sections. Gasoline was plentiful at all points, and while some refiners were not willing to quote lower prices to move the material, preferring to store it in anticipation of the greater demand during the coming season, other refiners were allowing additional price concessions on shipments made into differential territory. Natural gasolines were somewhat improved from the standpoint of demand and prices were firm in the Mid-Continent, due to increasing the rate of export shipments. What trend prices will take after the middle of the month, when these contracts are completed, remains uncertain. Fuel oils continue weak, especially in California. Gas oil remains unchanged with a continued good demand shown along the Atlantic. Lubricants are moving slowly, but with the improved conditions in the Gulf Coast area, there is a better general feeling regarding future price trends. Wax demands are expected to increase in the near future, but at this time its movement is slow.

Mid-Continent—Refinery gasolines were in little demand, and while some refiners chose to store rather than sell on the spot market, there was still plenty of material offered at fractionally lower prices. Natural gasolines strengthened as a result of expediting export orders. Fuel oils were in fair demand, and there was chance of a slight improvement in prices over the next week as a result of the removal of distress material. Kerosenes were unchanged. Lubs moved slowly, but prices were more stable. Wax export inquiries raised hopes of improved prices, but there was little material actually moved.

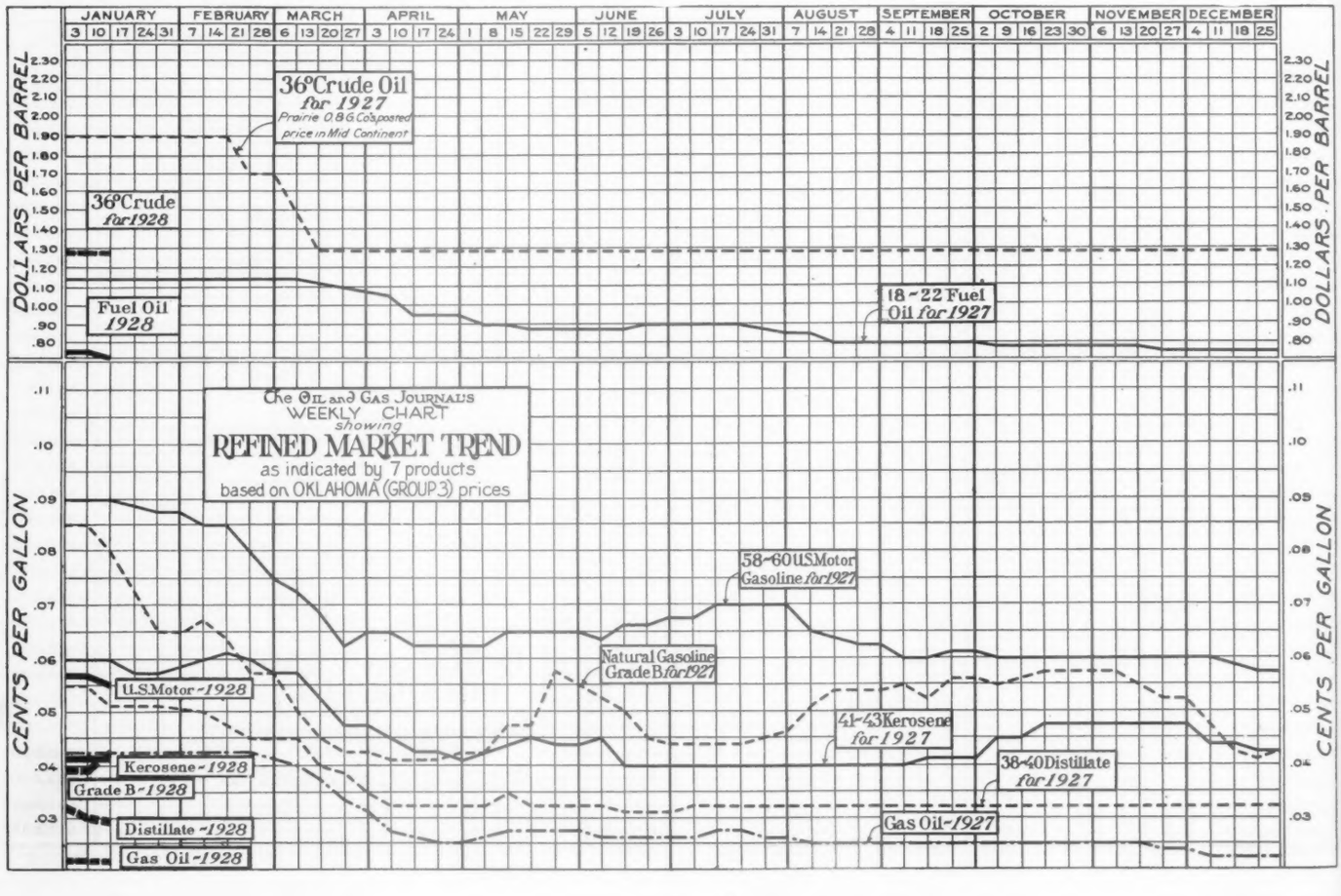
Atlantic Seaboard—Gasoline was generally unchanged. Kerosene continued firm as additional shipments were made for foreign points. Gas oil was in good demand as Diesel oil, but bunker fuel was very weak. Lubs moved slowly with prices unchanged.

Pennsylvania—Gasolines were generally weaker, while no change is noted in the balance of the market.

Chicago—Practically no change in the market was shown for the week. Gasoline continued plentiful and what little material was traded carried slightly lower prices. Fuels were noticeably weaker.

California—Quietness characterized the general market, and prices on kerosene and fuel oils were slightly lower.

Houston—Improved conditions resulting from several refineries curtailing operations have allowed lub prices to increase fractionally.



Plan of Self-Governing Cooperation

Engineer Outlines Machinery Which Would Permit Petroleum Industry to Solve Its Overproduction Problems

By Earl Oliver

The executive department of the Federal Government has urged in behalf of the public interest that co-operation between adjacent producers shall be substituted for competitive extraction in the production of oil and gas. It states that by this means production can be stabilized and more efficient extraction effected. It also urges that the machinery and methods to bring about this condition shall be evolved by the oil industry. It appears to imply, however, that if the oil industry does not make definite progress in that direction, then that the several legislative bodies of the states and nation will be found trying to set up machinery and methods of their own construction for the control of the oil industry.

While we have no authority to speak for any agency of government, nor do we assume to interpret the government attitude except as the same is to be gleaned from public acts and statements, yet we believe the implication relative to legislation should be construed more as a friendly warning of danger than as a threat. It is clear, however, if the Federal Oil Board would retain control of this movement, giving it intelligent unified direction instead of permitting it to degenerate into a chaotic multitude of legislative proposals, it must have some definite program to sponsor during this session of Congress. This does not necessarily mean coercive legislation, for the power of Congress in this respect is in doubt, but there is no doubt of its power to deal in some degree with permissive legislation. A strong, sound, constructive program sponsored by the Federal Oil Board would head off irresponsible proposals. It is asserted by many acquainted with Washington conditions that much attention from sources other than the oil board will be given to oil during this session of Congress. It is apparent, therefore, if the oil industry would remain free to work out its own problems, it should evolve some program that would be a definite step toward co-operation.

Machinery of Co-operation

It is, of course, obvious that any program to be acceptable must provide such safeguards as will protect the public against abuse in the matter of price through the co-operation thus permitted. On the other hand, it must protect those who co-operate against unwarranted prosecution under some existing anti-trust statute. In so far as it is practicable the machinery of co-operation should be under control of the oil industry. But at the same time it must be such that any abuse can be easily detected and prevented.

To that end the following machinery of co-operation is suggested.

1. In each flush pool or prospective pool the several owners shall organize into a loosely constructed permanent organization similar to a typical chamber of commerce without authority to bind its individual members in respect to their property, but merely to provide permanent machinery whose function would be to develop and promote co-operation among the several owners on all matters of common interest. Any collective matter requiring binding contractual agreement would be taken up by this agency and considered as an individual problem entirely distinct from the routine organization responsibilities.

2. Each pool organization shall be an independent local, self-governing unit entirely free from connection with any other units except as it shall delegate powers to an emergency central committee hereafter described.

3. Each such local organization shall have duly elected officers with an active secretary and with by-laws setting forth the purpose of the organization, qualification for membership, voting privileges, basis of voting, methods of transacting business, etc., etc.

4. Since such local organization would only initiate movements for co-operation without the authority to bind individual members unless their later specific assent is secured, there is no reason why 100 per cent membership in each prospective flush pool should not be obtained, if tact is used, thus making it a convenient medium in which to discuss and transact innumerable matters of common interest that occur in all pools—such as casing points, water protection, community roads, water supply, sanitation, police, restriction of drilling, proration, restriction of production, application of uniform gas pressures, etc., etc.

During Emergencies

5. During serious overproduction periods when statistics indicate oil is being taken from the ground only to be placed in steel storage, then an emergency condition would be deemed to exist during which period each local pool organization would name a representative or representatives to a central committee whose duty it would be:

First: To confer with the proper state and Federal governmental agencies having jurisdiction over oil and secure official sanction to a restriction in the aggregate equivalent to the amount being run to storage.

Second: To prorate this restriction over the several flush pools of the country in proportion to their potential output.

This, of course, would be a continuing function so long as the overproduction continues. By virtue of co-operation with government agencies, the public would be protected against undue restriction, and on the other hand the co-operating companies would be protected from prosecution under existing anti-trust statutes not meant to apply to this character of condition.

6. The local committee of each pool having been advised of the quantity would thereupon study its own local pool in detail and determine upon ways and means of restricting the output of that particular pool to the total aggregate determined upon for that pool by the central committee.

Freedom to Drill

Perhaps it might be found desirable that each operator have complete freedom to drill when and as he wants with the understanding, however, he may produce from week to week only that percentage of the apparent potential production of his wells as the amount allowed for the field bears to the field's potential production. Local machinery would be set up to pass upon potential production of individual properties from week to week. Some very simple contract should be entered into between the operators in each pool so that a refractory one, after joining, cannot break up the program at his pleasure. The machinery should be such as to give every participant the utmost assurance of fair dealing, etc., with the right to appeal from decision of the committee so that no one is placed subject to the arbitrary decision of some imagined dictator. If machinery is designed that will insure a maximum of justice with a helping hand to those driven by financial necessity or by lease or contractual obligations, there will be diminishing difficulty in securing the desired co-operation. If absolute justice is assured and the preponderance of sentiment favors co-operation, the force of opinion will find means of bringing in the exceptional party who holds out.

It is believed the characteristic absence of co-operation in the oil industry is largely due to the absence of any suitable medium through which co-operation might be secured. Usually when the need arises, quick action is necessary. The above proposal means nothing more than a suitable type of machinery to be ready and functioning at all times. The use of it will grow as it demonstrates its ability to serve.

Control to Owners

It is designed to give the maximum control to the owners whose properties are directly affected and yet to afford the contact with government that is necessary when large scale co-operation is undertaken. Since a fundamental principle of anti-trust legislation is that it will be interpreted with the rule of reason, and the Federal Oil Board has repeatedly urged that individual pools be handled as units, it is inconceivable that Federal Department of Justice officials could construe local pool organizations as coming within the purview of those statutes, provided, of course, they are handled in an open manner and in good faith. On the other hand, the department

(Continued on Page 129)

SUGGESTIONS TO OIL INDUSTRY

In a foreword to the accompanying article, Mr. Oliver says:

"It is important that out of the present difficulties something permanent shall be evolved that will tend to make less probable a recurrence of these problems. Proration is excellent, but alone it is not sufficient. The present proration machinery will dissolve when this emergency ceases.

"It is also desirable that any permanent machinery shall be self controlled. Government and industry must go hand in hand, but the maximum control consistent with protection of the public welfare should rest in those who own the property.

"To assist in keeping these principles uppermost during the present formative period the accompanying suggestions are made. They are not complete. Neither are they thought to be perfect. But if they suggest a line of thought to those who are now moulding the future of the industry they will have served their purpose. Both practices and laws will change. To the extent the legality of any desirable procedure is in question, the laws can be modified provided the proposal is of sufficient economic importance to justify."

OFFICIALS OF THE TEXAS CORP. INSPECTING CALIFORNIA PETROLEUM

By L. P. Stockman

LOS ANGELES, Calif., Jan. 9.—It has been impossible to secure absolute confirmation of the deal between The Texas Company and California Petroleum Corp., the secretary and other officials of the local corporation naturally disclaiming knowledge.

Developments durinf the past few years indicate that the major oil companies of the United States are awakening to the fact that California offers exceptional possibilities from both a development and marketing standpoint. The appreciation of California's present importance and probable future position in the oil industry has resulted in the consummation of a number of mergers and marketing agreements between various companies during this period. Outstanding consolidations or mergers affecting California companies brought together the Tide Water and Associated Oil interests, and Standard of New York and General Petroleum, both of which will no doubt become of more importance as time goes on. The Union Oil Company has been linked up in several possible mergers but nothing along this line has ever reached a concrete stage nothwithstanding the fact that this concern is a most logical participant because of its vast crude oil resources. The latest merger rumor links up California Petroleum Corporation with The Texas Company and while this transaction is still in the tentative stage negotiations up to the present time indicate the probability of an early successful conclusion. President Jacques Vinmont of the California Petroleum Corp., who recently returned from the East, has admitted that negotiations have been in progress for several weeks and the presence of President R. C. Holmes and other members of The Texas Company in Los Angeles last week confirmed the opinion of many that this deal will be closed in the very near future. Examination of the California Petroleum Corporation holdings and facilities by The Texas Company officials has been very complete.

President Vinmont, upon his return to Los Angeles, immediately left with The Texas Company officials for a minute inspection of the California Petroleum Corporation refinery and facilities at Seattle. His anticipated absence of two weeks from Los Angeles indicates the probability that he will accompany The Texas Company's officials to New York for a final decision.

Regarded Certain in New York

By N. O. Fanning

NEW YORK, Jan. 9.—It is regarded as a certainty here that The Texas Corporation and California Petroleum Corporation merger will be consummated and terms announced by the end of this week. R. C. Holmes and Jacques Vinmont, heads of the respective companies, are now on the way to New York from California. The combined assets of the two concerns is approximately $275,000,000. This will mark the first entry of the Texas corporation into California on a big scale.

Water Extending Up Winkler Structure

Estimates of Ultimate Output May Be Revised. Amerada Well Opens Discussion Whether There Is One or Two Structures

By J. L. Dwyer

A development regarded as of outstanding importance to the petroleum industry is the encroachment of salt water in the Hendricks Pool of Winkler County, Texas, where 13 wells are affected, with 12 of them showing water in quantities deemed alarming to the outlook for heavy production.

This statement should not be taken as indicating that the production of this pool will fall off and disappear overnight, for it has often been remarked that there never was an oil field without some water, but the extension of the water, and the direction in which it has spread are of themselves of sufficient importance to indicate that previous estimates regarding the prospects of this part of the Mid-Continent Field should now be subjected to a broad revision downward.

The Hendricks Pool, which now has an estimated daily production of about 63,000 bbls., is spread over an area 4 miles north and south, and 1½ miles east and west, with an abundance of territory which looks drillable between the various groups of wells which at this time constitute the pool. The discovery well was drilled in the southeast corner of Section 42 on the lease which is the property of the Southern Crude Oil Purchasing Co. The discovery well is now believed to be on the low part on the west side of the structure, and the most hopeful part of this region seems to be on the east side of the pool.

The discovery well was located on the 200-foot contour as illustrated on the accompanying map. The lowest wells are located upon the 100-foot contour, just east of the discovery well. It was on this contour that water first appeared. The extension of water to other parts of the structure has been carefully observed, and it is noticeable that it has gradually travelled up the structure, passing the 300-foot contour, and approaching the 400-foot contour line. It has been confined to two general regions, the part of the field around the corner which joins Sections 33, 34, 41 and 42; and also around the center of Section 29. The 12 wells marked with a circle on the map are now making appreciable amounts of water which has in the majority of cases been increasing. The wells on the 500-foot contour and above, are free from water. It is extremely significant that water has appeared over three-fifths of the way up the west side of the structure.

Production from Lime

The producing stratum in the Hendricks Pool is a dolomitic lime of Permian age, similar to the dolomitic limes found in other pools of West Texas. Reagan, Yates and McCamey Pools have produced from a formation which is practically similar to the horizon which furnishes the Hendricks oil. Now that gas has been found in the Amerada well in the SW cor. NW, Section 48, and at a depth which causes various estimates as to the possibilities of the east side of the pool the Hendricks picture may be changed. Opinions regarding the Amerada well differ greatly. The well is making 60,000,000 feet of gas, and the origin of this gas is the source of discussion. If it is coming from the top of the lime which produces in the west side of the field, it is claimed to be running over 300 feet high. It is a distance of 2½ miles from the present limits of production, and finding the top of the lime 300 feet higher over that distance would mean, a very pronounced broadening out of the contour lines which will eventually be placed on the east side of the pool. To assume that the region between the present limits of production and the Amerada well will be one continuous structure is taking a lot of territory into consideration, and possibly, the Amerada well will be on the high of a structure which is independent of the present Hendricks structure. It is known that there was ample geological reason for the location of the Amerada well, and now that it has found the gas, the region around this well is looked upon as having much greater valuation and possibilities.

In the Crane-Upton Pools, there was no general water line, and the appearance of salt water was not governed by structural position, but appeared sporadically in different parts of the field with little regard for contours. It is quite possible that the Hendricks Pool will repeat this performance and in this manner will record a similar movement. It might be observed that the northwest part of the field around Sections 43 and 44 although they are situated on the low flank of the structure, are free from water troubles. The majority of these wells are located on the 100, 200 and 300-foot contour lines, but the water has not been apparent in them to date. This fact might be considered as having a bearing upon the remark made above regarding the performance of water in other lime pools. The fact that many drilling wells lose their mud laden fluid circulation offers additional reason for thought of loose, porous, formations being found, and also fissures and crevices. In a region where loose porous streaks are to be expected, the course of the water is problematical, and it is to be expected anywhere in the field without regard for highs and lows.

May Be One Big Structure

The question which will exert the greatest influence upon the future of the Hendricks Pool is whether or not the Amerada well is located upon a separate structure and completely cut off from the present Hendricks Pool, or whether it is the real high of the region, and the entire 2½ miles may be anticipated as the west slope of the structure. The latter is possible, for things like that happen in Texas.

Taking a long distance view of the entire West Texas picture, it might seems that distance lends enhancement. Considered from the remarks that are heard, West Texas seems to mean that the entire region between Texarkana and Signal Hill is a proven field which will take ample care of the crude requirements of the nation for all times. One wonders if the long distance reports are not very much inclined to become hot by transmission, for the opinions of operators and officials who have had extensive experience in the West Texas fields are not nearly so enthusiastic.

The Yates Pool of Pecos County where production is encountered at a comparatively shallow depth is possibly the most heard of pool in this region. It is now reported to have a potential daily production of 600,000 bbls. according to the most recent gauges. These gauges are taken after wells which have been shut in for a considerable period are allowed to flow for one hour. The one hour's production is multiplied by 24, and the wells and pool receives ratings upon this figure. It hardly seems plausible to give the pool a rating on this basis when one considers the records and performances of all the lime pools discovered to date. One of the outstanding characteristics of lime production is that it makes its largest flow in the first few hours after discovery. There have been innumerable production curves established giving the records of lime wells, and they all bear out this fact very substantially. After the first few hours, the oil from the lime wells starts its declines, and from then to the pumping stage the decline is rather rapid, although when the pumping stage is reached, the curve flattens out and holds its output exceedingly well.

Pecos and Winkler being lime pools, and especially Pecos on account of its shallow depth might be considered in the light mentioned above. Unquestionably they will produce lots of oil, but if the wells were all thrown wide open and allowed to flow for several days, there would be a very different story to tell.

An executive who has operated in almost every field of the nation recently commented upon Pecos, and remarked that the owners of properties in that field had better flow their wells under a back pressure of some kind, regardless of whether it was done on account of proration or voluntarily, for if the wells were allowed to flow wide open for 20 days, the entire pool would not produce 100,000 bbls. at the end of that period. Whether or not he was correct in his calculations remains to be seen, but he was basing his estimates of Pecos upon performances in Mexican fields where he has had an abundance of experience.

Tests taken in the Hendricks Pool show that many wells have the best results when flowed under a back pressure. When some of these wells are permitted to flow openly, they make a good amount of water and b.s. but when flowed under the pressure, the oil is entirely clean. It is believed that this fact will attract

Analyses of West Texas Crude Oils

Bureau of Mines Reports Covers Samples From Big Lake, Chalk, Church-Fields, McElroy, McCamey, World, Hendricks and Yates

By A. J. Kraemer[1], Peter Grandone[2] and C. S. Luce[1]

The Bureau of Mines for a number of years has been studying the properties of crude petroleum from producing fields in the United States and the western hemisphere and has published a series of reports on these fields, including oil fields of Texas.

The samples included in this report were collected during a recent field trip by H. H. Hill, chief petroleum engineer of the Bureau of Mines, and H. B. Hill, engineer in charge of the Dallas, Tex., field office of the bureau. The samples were analyzed under the direction of E. C. Lane at the petroleum experiment station of the Bureau of Mines at Bartlesville, Okla.

Big Lake

The discovery well in the Big Lake Field was completed during May, 1923, by the Texon Oil & Land Co., at a depth of 3,028 feet and with a daily initial production of 70 bbls. The field is owned entirely by two companies, the Texon Oil & Eand Co., and the Big Lake Oil Co., and covers about 6 square miles. The average depth to the producing formation is 2,900 to 3,100 feet. The total production of the field to November 1, 1927, was approximately 28,700,000 bbls.

Chalk Field

The discovery well in this field was completed April 23, 1926, with an initial daily production of 60 bbls. The average depth of wells producing from the Chalk sand is about 1,600 feet. This sand is about 17 feet thick. The daily production on November 15, 1927, was approximately 4,460 bbls. from 106 wells.

Sample 27,857 represents production from a deep well which was completed October 24, 1927, and is producing from a porous limestone at a depth of 2,956 feet.

Church and Fields Pool

The discovery well in the Church & Fields Pool was completed March 22, 1926, at a total depth of 3,030 feet, or 424 feet below sea level, with an initial daily production of 90 bbls., flowing by heads. The average depth to the producing formation is 2,900 to 3,200 feet. The natural gas from this field contains a large proportion of hydrogen sulphide and is very poisonous. The daily production of the Church & Fields Pool on November 15, 1927, was about 90,000 bbls. from 150 wells; a large part was being run to storage.

McCamey Field

The discovery well in the McCamey Field was completed September 9, 1925, by Johnson and McCamey on the Baker lease. The total depth of the well was 2,272 feet and the initial daily production was 70 bbls. The average depth to the producing formation in this field is 1,800 to 2,300 feet. The production of the field on November 15, 1927, was about 18,000 bbls. daily.

McElroy Field

The McElroy Field was discovered by the Gulf Production Co. with the completion of Gulf-McElroy No. 1, Section 203, July 9, 1926. At a depth of 2,744 feet this well came in flowing by heads at the rate of 200 bbls. daily. On July 23 it was deepened to 2,730 feet, and the daily production increased to 500 bbls. The average depth to the producing formation is 2,800 to 2,900 feet. The production of this field on November 15, 1927, was about 20,000 bbls. daily from 54 wells, a number of the wells being restricted in production.

The Gulf Production Co. is treating part of the natural gas from this field and is removing practically all of the sulphur compounds. Although the costs for treatment are probably high, especially as considered in oil field practice, they are believed to be warranted, because equipment is protected against

(Continued on Page 77)

[1]Associate petroleum chemist, Washington, D. C., Bureau of Mines.

[2]Junior chemist, Bureau of Mines.

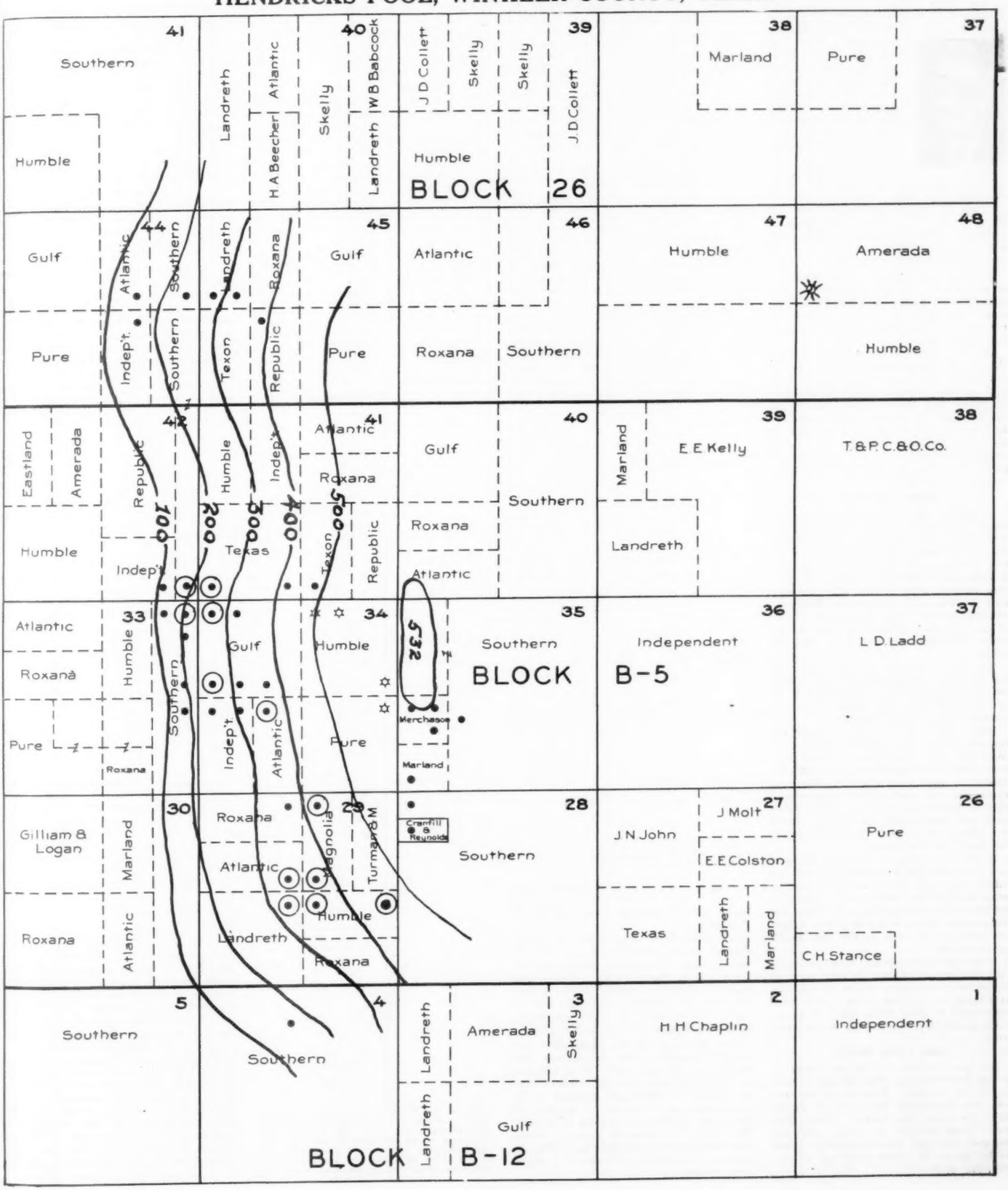
the attention of operators, and influence them to flow their wells under back pressure.

The vastness of West Texas inspires the use of superlatives. The very nature of a country where you can drive all day through a couple of ranches, and where they measure their lease holdings by counties instead of by acres is conducive to expansive thoughts, and what wonder then that when new operations are found in a country like this, that the imagination is allowed to stretch.

When the Texas Panhandle Field came in during the summer of 1926, there was an abundance of talk regarding the proven field 40 miles by 36, and the amazing part of it was that the talk was given very small questioning, but on the whole enjoyed a good reception. There was talk about 5,000 proven locations to be drilled, and yet when the balance sheets of the Panhandle are shown, what a sad story they reveal.

The experiences of the Panhandle are certain to introduce a note of caution to the drilling and leasing activity of the West Texas fields, but considering the record of all lime production, it is plausible that many of the most excited views regarding the phenominal production to come from there are decidedly "hot." The West Texas fields constitute a good producing region, their record has already established that; but the spread of water in the Hendricks Pool has possibly sounded the tocsin which will set the petroleum minds to thinking that it might not constitute the big menace which it threatened a few weeks ago.

HENDRICKS POOL, WINKLER COUNTY, TEXAS



North Texas Repressuring Successful

Good Results Obtained by Companies Who Have Tried It in Wichita Falls District. Cost Quite Reasonable

By James H. Dameron

WICHITA FALLS, Tex., Jan. 7.—Several factors are present to prevent Wichita Falls district operators from attempting to use air or gas as a means of securing greater production. But with the trend for conservation several methods have been devised for operation in that district.

In the past two years experiments to increase production by inducing air or gas into the sands, have been carried on with no small degree of success and that system of producing old pools is gaining in favor. There are several pools where such a method has been employed and with considerable success.

In short the system is one where air or gas is sent into the sand with a predetermined pressure of enough force to carry the oil to the nearest avenue of escape—the well bottom—from where it is pumped out.

Harmel Pool in southwest Archer County has been made to maintain its production far better than the average pool in that section. Fain & McGaha Oil Corp. and Marland Oil Co., control the bulk of the producing acreage and as a result of building up a pressure in the sand on their leases with air the production curve for the leases was flattened out. Fain & McGaha corporation operate the property.

Aided Production

Two years ago when the method was being experimented with the production was around 600 bbls. under ordinary production methods. Two months after air had been induced in the sand the production rose to 900 bbls. daily. Production hovered around that mark for several months and then started declining, slower, however, than the normal decline of other pools. Production now is between 450 bbls. and 500 bbls. from 39 wells.

The "air" plant is one that was built on the lease and inexpensive but despite its unique features it is figured to be 82 per cent efficient. The entire cost is estimated to be around $2,000.

The wells on the five leases are pumped from three power houses and three old and idle power engines were converted into compressors. One was installed in each power house. The conversion of the engines into compressors was accomplished by removing the firing head and substituting flat heads. There is a quarter of an inch clearance between the head and the piston.

A "T" connection is built in the head and has two 2-inch connections for the intake and discharge of air and both are controlled by ball check valves. Another engine is set up in tandem and drives the compressor with a belt and pully. Ample pressure can be built up for the lease's requirements.

Key wells were selected from the wells that had been abandoned or were down in production to a point where it was unprofitable to operate them. Air lines were built to these wells which were reconditioned to prevent much loss in pressure.

Still Pump Wells

Air was induced in the key wells at a low pressure and was gradually built up to 30 pounds. Production increase was not immediate but about a month later the production began to climb. The wells were pumped as usual and are pumped now, the pressure merely served as an agent to move more oil to the pumping wells.

Offset wells on neighboring leases did not show any material gain, but a lease about half a mile distant showed an increase in production. It is the intention of the operators in Wichita Falls district to so regulate the pressure that it will affect the wells on their leases only.

Six intake wells have been connected on the leases as are shown on the accompanying map. On the Echols "A" lease one well serves for the 10 producing wells. One intake well is located on the Harmel "A" lease, Harmel "B" lease and Harmel "C" lease while two intake wells serve the Griffin lease.

Air is forced into the sands at alternate 24-hour periods. It is sent into the Harmel "B" and "C" leases for 24 hours and then into Harmel "A" lease and Echols "A" lease the next 24 hours. The Griffin lease has two intake wells at either end of the lease and air is induced in those wells at alternate 24-hour periods.

The Echols "A" lease has eight pumping wells and is producing 150 bbls. daily; the Griffin lease has 11 pumping wells, and is producing between 100 and 120 bbls. daily; the Harmel "C" lease has 11 pumpers making between 120 and 180 bbls. daily and Harmel "A" and "B" leases have 7 pumping wells making 60 bbls. daily.

At present an experiment is being carried on to recycle the gas on the Echols lease. A gasoline plant is recovering the gas from the air and gas coming from the other leases. On the Echols lease the air content of the gas was 77 per cent one month ago when the experiment was started to recycle the gas.

One month after the experiment had been in progress the air content had dropped to 63 per cent. It is believed by recycling that the air content will be exhausted. The main purpose of the experiment is to restore the gravity of the crude. The average gravity of Harmel Pool crude is around 41 gravity. Since the recycling experiment has been in progress the gravity has shown a slight improvement.

Pressure of air going into the 1,280-foot sand was built up slowly. In this manner the hazard of channeling was eliminated and the desired pressure was reached as near as possible without affecting offset leases.

Roxana Also Successful

Roxana Petroleum Corp. is meeting with good results by using a similar method in the Oldham Field which produces from the Swastika sand at 1,350 feet. That lease is a 70-acre tract with 14 pumping wells and two key wells.

A compressor was moved on the lease and the gas is being recycled into the sand. Around 130,000 feet is being taken out daily and 90,000 feet is being sent back to the sand. The remaining gas is used on the lease.

Before the gas was recycled six months ago the production of the lease was down to 375 bbls. daily. Now the production is around 475 bbls. daily and still on an upward trend. Production is not expected to go much higher but the decline curve is expected to show a more gradual drop than the curve for other leases. In this instance, too, production of adjoining leases was not materially affected.

Pressure was gradually built up to 90 pounds to eliminate channeling and then gradually lowered. The gas is being returned to the sand at a pressure of between 45 and 60 pounds at present.

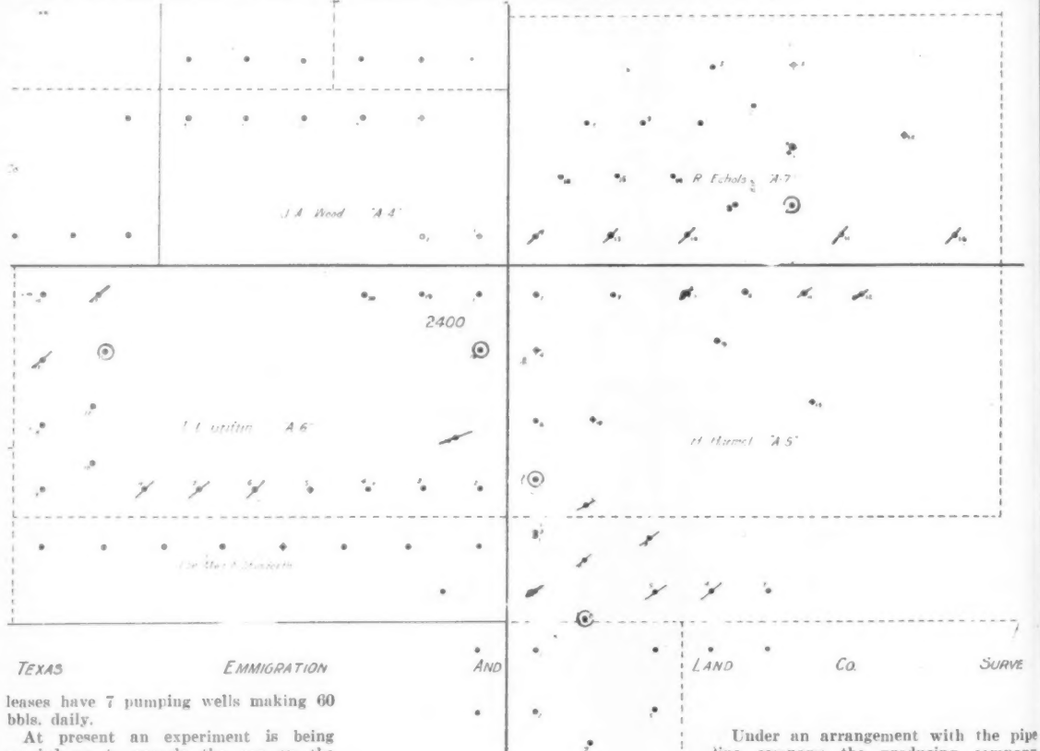
Shooting and cleaning out of the wells has helped production to some extent. Light shots were put off in some of the wells and their production increased while cleaning out aided others.

The lease was making quite a bit of gasoline in the drips. Between 70 and 80 gallons of gasoline is being caught now. It comes from the compressor and goes through a cooling coil and is collected in an accumulator.

Petrolia Pool

Crenshaw and Campbell, Wichita Falls operators, have had unusual success in building up production in the old Petrolia Pool. Production from the several score wells in the old pool was down to where it was tallied in two figures when they purchased the entire producing acreage in the pool.

The wells were worked over and the key wells were reconditioned. A gas line was in close proximity to the pool and a line was extended to the pool and the gas sent to the sand. Like in the other pools mentioned it was inducted under low pressure and the pressure gradually built up.



Part of the Harmel Pool, Archer County, Texas. Wells in circles are key wells on Fain-McGaha Oil Corp. and Marland Oil Co. lease which are used to send air into the producing sand to aid production. All wells marked as abandoned producers have not been abandoned, a few have been temporarily abandoned.

Under an arrangement with the pipe line company the producing company pays for the gas it does not use or, in other words, it pays for the difference between what dry gas is taken from the line and the gas returned from the sand to the line. Better than 75 per cent of the dry gas taken from the line is returned to the pipe line company.

Within two months after gas had been forced into the sand production started to increase and rose to close to 400 bbls. daily. At present the production of the pool is being held to around 275 bbls. daily. However, the pool is capable of making more oil. Because of the low prices of crude the wells are being pumped every other day instead of daily.

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Slight Decrease in Plant Operations

Schedule of Mid-Continent Refiners for January Practically Same as December. Greater Than Year Ago

By W. T. Ziegenhain

Refinery crude oil runs in the Mid-Continent for the first month of the new year show only a slight decrease and do not reflect the generally weak market conditions for refined products. The January daily runs will average 415,125 bbls compared with 417,455 bbls. last month and 403,625 bbls. for January a year ago. There have been no major changes made in the crude runs by states, Oklahoma, Arkansas and North Louisiana registering a slight decrease each while both North-Central Texas and Kansas show some increase, over last month.

Making the same comparison over the year, the Oklahoma and Kansas crude runs show but little change, North-Central Texas made the greatest increase, while the North Louisiana and Arkansas runs decreased slightly. The increase of 13,875 bbls. in the Texas runs over the year is responsible for the total increase of 11,500 bbls. shown for the Mid-Continent as a whole.

The weak refined oil market in 1927 was a factor in further decreasing the number of plants and for the last two months less than 100 plants have been in operation, the lowest number of operating plants in the Mid-Continent for many years. Likewise, there are no new plants being added, the tendency being for the larger units to increase their capacity as needed rather than new refineries being built.

Several of the refineries shutting down during the year have been hanging on for a long time, hoping conditions would improve. In all probability, most of these plants will not be operated soon again. At least that is the outlook at present and their owners have made preparations for this.

The present year does not promise to be one in which a great deal of building will take place in the Mid-Continent. Several companies have investigated conditions in the West Texas fields with the thought of building a refinery there but there is little to justify such a location.

There are already enough refineries there or definitely planned to supply the local needs and as this territory is at a decided freight disadvantage in marketing its products in the Middle West and on the Gulf, only abnormally low crude prices would allow a plant to profitably operate in competition with the existing refining centers.

Oklahoma

The slight falling-off of the Oklahoma runs is further indicative of the unchanged operations of the Oklahoma refineries. The exceptions to this general statement are the shutting down of the Interocean Oil Co.'s plant at Bristow and the starting up of the Producers Oil Co.'s plant also at Bristow. The Cyril refinery of the Anderson & Prichard Refining Co. is down temporarily to facilitate the repair of some equipment damaged by fire recently but their operations will be resumed in about 10 days.

RUNS TO STILLS IN MID-CONTINENT REFINERIES

1926	
January 1	390,200
February 1	385,845
March 1	365,990
April 1	368,210
May 1	391,355
June 1	415,450
July 1	410,070
August 1	407,475
September 1	419,995
October 1	408,975
November 1	417,575
December 1	403,450
1927	
January 1	403,625
February 1	418,595
March 1	418,920
April 1	401,860
May 1	407,355
June 1	426,170
July 1	428,075
August 1	457,800
September 1	422,150
October 1	420,955
November 1	426,645
December 1	417,455
1928	
January 1	415,125

Kansas

Refinery operations in Kansas showed practically no change over the month. The Wichita plant of the Barnsdall Refineries, Inc., is shown as running 1,200 bbls. of oil, but this is on the basis of running only during the first 15 days of the month, but it is possible the present runs of 2,400 bbls. daily will be maintained throughout the month, depending upon marketing conditions. The Golden Rule Refining Co. at Wichita has discontinued its cracking operations temporarily and there is a tendency for other Kansas refiners not to push their cracking operations, just at this time.

North Central Texas

Although the North Texas refiners showed the greatest change in the crude runs, the increase only amounted to 3,850 bbls. and was divided among several companies. The effect of the starting up of the Star Refining & Producing Co.'s 1,800-bbl. plant at Fort Worth was equalized by the shutting down of the Valley Refining Co.'s plant at Wichita Falls. A tendency to limit cracking operations is also seen in this district although practically all units are operating. The American Refining Co., however, has temporarily shut down its Cross units.

Arkansas and Louisiana

Estimated runs of crude oil to stills by all refineries in North Louisiana and South Arkansas for January, 1928, total 52,600 bbls. Two plants damaged by fire and explosion during November have completed repairs and will operate as usual while a third has added new equipment and may increase its runs to some extent. The two plants referred to are the Lion Oil & Refining Co. and the Root Refineries, Inc., both at El Dorado, while the third is MacMillan Petroleum Products Co., also of El Dorado. Most of the refineries report anticipated runs about on a par with those of December while others say they will run less on account of the softness of the fuel oil market which governs their operations to a considerable extent.

MID-CONTINENT REFINERY OPERATIONS

TABLE NO. 1

(Based on operations January 1, 1928, and December 1, 1927)

	*No. of Plants Jan. 1	Crude Cap'y Bbls.	Cracking Cap'y Bbls.	Plants Oper'g Jan. 1	Runs to Stills Jan. 1	Plants Oper'g Dec. 1	Runs to Stills Dec. 1	Daily Decrease Jan. 1
Oklahoma	47	275,700	80,100	41	177,725	41	180,905	3,180
N. C. Texas	33	174,200	43,800	31	101,100	31	97,250	†3,850
Kansas‡	20	133,500	61,600	16	84,800	16	84,700	†100
No. Louisiana	4	44,300	19,300	4	36,100	4	36,500	400
Arkansas	9	32,300	30,300	7	15,400	7	18,100	2,700
Total	119	660,000	235,100	99	415,125	99	417,455	2,330

*Does not include plants shut down one year or more. †Increase. ‡Includes two Missouri plants.

TABLE NO. 2

(Based on operations January 1, 1928, and January 1, 1927)

	No. of Plants Jan. 1, 1927	Crude Cap'y Jan. 1, 1927	Plants Oper'g Jan. 1, 1927	Runs to Stills Jan. 1, 1927	Daily Inc. Jan. 1, 1928
Oklahoma	51	263,300	44	175,300	2,425
N. C. Texas	39	172,900	33	87,225	13,875
Kansas‡	19	123,000	16	81,000	3,800
No. Louisiana	5	50,000	4	40,750	†4,650
Arkansas	10	32,000	8	19,350	†3,950
Total	124	641,200	105	403,625	11,500

*Does not include plants shut down one year or more. †Decrease. ‡Includes one Missouri plant.

REFINERY OPERATIONS IN OKLAHOMA

(Plants which have been in operation during the past year)

Name and Location—	Daily Capacity	Runs Jan. 1	Runs Dec. 1
Anderson-Prichard Oil Corp., Cyril	2,500	1,900	1,800
Barnsdall Refineries, Inc., Barnsdall	6,000	2,500	3,500
Barnsdall Refineries, Inc., Okmulgee	10,000	6,500	6,500
Bell Oil & Gas Co., Grandfield	4,500	2,100	2,100
Bolene Refining Co., Enid	5,000	3,000	3,000
Canfield Refining Co., Yale	400	75	75
Champlin Refining Co., Enid	**16,000**	**12,000**	**11,500**
Continental Oil Co., Sapulpa	10,000	2,500	2,500
Cushing Refining & Gasoline Co., Blackwell	1,500	1,500	1,500
Cushing Refining & Gasoline Co., Cushing	3,500	1,500	1,500
Empire Oil & Refining Co., Cushing	5,000	4,700	4,700
Empire Oil & Refining Co., Okmulgee	3,000	3,000	3,000
Empire Oil & Refining Co., Ponca City	7,500	7,500	7,500
Garber Refineries, Inc., Garber	3,500	3,000	3,000
Gilmer Oil Co., Ringling	1,500	Shut down	Shut down
Globe Oil & Refining Co., Blackwell	5,000	5,000	5,000
Illinois Oil Co., Cushing	3,000	1,800	1,600
Imperial Refining Co., Ardmore	5,000	Shut down	Shut down
Independent Oil & Gas Co., Okmulgee	4,000	2,700	2,700
Interocean Refining Co., Bristow	4,000	Shut down	1,000
Johnson Oil Refining Co., Cleveland	6,000	5,000	5,500
Marland Refining Co., Ponca City	28,000	18,000	18,000
Mid-Continent Petroleum Corp., West Tulsa	40,000	24,000	25,000
Oil State Refining Co., Enid	2,000	Shut down	Shut down
Oil State Refining Co., Allen	800	500	500
Peppers Gasoline Co., Covington	1,000	800	700
Pierce Oil Corp., Sand Springs	12,000	6,000	6,000
Producers Oil Co., Bristow	2,500	800	Shut down
Producers & Refiners Corp., West Tulsa	6,000	3,600	3,600
Pure Oil Co., Ardmore	5,000	2,000	2,000
Pure Oil Co., Muskogee	8,000	7,000	7,000
Riley Petroleum Co., Bristow	1,000	250	300
Rock Island Refining Co., Beckett	2,500	1,400	1,400
Sayre Oil & Refining Co., Sayre	500	Shut down	Shut down
Shaffer Oil & Refining Co., Cushing	10,000	10,000	10,000
Sun Oil Co., Yale	4,500	4,500	4,500
Sinclair Refining Co., Muskogee	1,000	800	800
The Texas Company, West Tulsa	12,000	12,000	12,000
Texas Pacific Coal & Oil Co., Wynnewood	2,500	Shut down	Shut down
Tidal Refining Co., Drumright	10,000	8,000	8,000
Transcontinental Oil Co., Boynton	2,500	1,800	1,800
Transcontinental Oil Co., Bristow	5,000	3,000	3,000
Tonkawa Petroleum Co., Tonkawa	2,500	700	700
Western Oil Corp., Beckett	2,000	1,000	1,500
White Oak Refining Co., Allen	2,000	2,000	1,725
Wirt Franklin Petroleum Corp., Ardmore	4,000	2,300	3,255
Yale Oil Corp., Yale	1,500	1,000	1,000
Total	275,700	177,725	180,905

REFINERY OPERATIONS IN NORTH LOUISIANA

(Plants which have been in operation during the past year)

Name and Location—	Daily Capacity	Runs Jan. 1	Runs Dec. 1
Crystal Oil Refining Corp., Shreveport	13,000	9,500	9,700
Louisiana Oil Refining Corp., Shreveport, Bossier	20,000	16,000	16,000
Shreveport Producing & Refining Co., Shreveport	5,500	5,000	5,200
*The Texas Company, Shreveport	5,800	5,600	5,600
Total	44,300	36,000	36,500

*Topping.

REFINERY OPERATIONS IN ARKANSAS

(Plants which have been in operation during the past year)

Name and Location—	Daily Capacity	Runs Jan. 1	Runs Dec. 1
Henry H. Cross Co., Smackover	4,000	3,400	3,700
Houston Oil Co., Camden	3,000	Shut down	Shut down
Ke tle Creek Refining Co., Pearson	6,000	2,000	2,000
Lion Oil & Refining Co., El Dorado	12,000	4,000	5,000
Macmillan Petroleum Products Co., El Dorado	1,800	1,500	1,000
Ouachita Valley Refining Co., El Dorado	1,000	1,000	1,000
Root Refineries, El Dorado	2,500	1,000	2,900
Simms Oil Co., Smackover	1,000	2,500	2,500
E. M. Tulle, El Dorado	1,000	Shut down	Shut down
Total	32,300	15,400	18,100

REFINERY OPERATIONS IN KANSAS

(Plants which have been in operation during the past year)

Name and Location—	Daily Capacity	Runs Jan. 1	Runs Dec. 1
Arkansas City Refining Co., Arkansas City	8,000	Shut down	Shut down
Barnsdall Refineries, Inc., Wichita	5,000	1,200	2,500
Derby Oil Co., Wichita	5,000	3,500	3,500
Derby Oil Co., Russell	2,500	Shut down	Shut down
Eldorado Refining Co., Eldorado	3,500	2,200	2,200
Golden Rule Refining Co., Wichita	1,000	700	1,000
Kanotex Refining Co., Arkansas City	10,000	4,200	4,000
Manha tan Oil Co., Kansas City	7,000	4,000	4,000
Miller Petroleum Co., Humboldt	2,000	Shut down	Shut down
National Refining Co., Coffeyville	6,500	6,000	6,000
Peerless Oil Refining Co., Chanute	3,000	2,000	2,000
Roxana Petroleum Corp., Arkansas City	20,000	16,000	16,000
Sinclair Refining Co., Coffeyville	10,000	9,500	9,500
Sinclair Refining Co., Argentine	8,000	8,000	8,000
Skelly Oil Co., Eldorado	15,000	10,000	9,500
Standard Oil Co. of Kansas, Neodesha	12,000	8,000	7,500
Vickers Petroleum Co., Potwin	3,500	2,000	2,000
White Eagle Oil & Refining Co., Augusta	8,000	6,500	5,500
West Missouri Group—			
Alliance Rubber Producing Co., Centropolis	2,000	Shut down	Shut down
Wilhoit Refining Co., Joplin	1,500	1,000	1,000
Total	133,500	84,800	84,700

(Continued on Page 138)

Production Declining to Normalcy

California and West Texas Lease Owners Hold the Fate of the Industry in Their Hands This Year

By James McIntyre

After all the grief the oil industry went through the 1927 New Year's day of 1928 saw the total production of oil in the United States approximately 21,000 bbls. higher than on the same holiday in 1927.

This looks quite encouraging until it is remembered that between the two dates such a large overproduction prevailed that the industry is left with an added surplus of 70,000,000 bbls. of crude oil, or an average overproduction of 192,000 bbls. per day over the entire year.

Production on January 1, 1928, was 202,000 bbls. below the peak for the year (and for all time) which was 2,600,000 bbls. on July 30, 1927.

The Oil and Gas Journal has often stressed the fact that a very few wells of large production can unsettle the industry. The first 100 wells in Seminole with an average production of 1,000 bbls. per day per well sent crude prices tumbling in November, 1926, affecting 318,000 other wells and converting 300,000 of these into practically nonpaying units.

Nineteen Pools Show Increase

A careful combing of the pools of the United States shows that only 19 of them had a production increase worth recording when the figures for January 1, 1927 and 1928 were compared. Yet these were more than enough to cause all the trouble the industry has gone through in the past 12 months.

On the other hand 47 other pools of prominence showed an appreciable decrease and to this may be added a small net decrease in the multitude of other pools that make up the oil regions in 18 states.

Nineteen pools show a total increase of 571,194 bbls. per day. Forty-seven pools show a decline of 536,853 bbls. All the other pools show a net decline of 11,351 bbls. It may be said that there are numerous areas, most of them new, among these miscellaneous pools which had an increase in output, but insufficient to balance the losses in the older fields.

From Nothing to a Flood

Four big fields that showed no production on January 1, 1927, and their production on January 1, 1928, were Bowlegs, Okla., 102,085 bbls; Searight, Okla., 19,934 bbls.; Little River, Okla., 34,648 bbls., and Yates, Pecos County, Texas, 45,750 bbls. Here is a clear gain of 202,417 bbls. a day, which more than represents the average overproduction for the year which was 192,000 bbls. a day. Added to this was a gain of 55,878 bbls. in Winkler County, where production on January 1, 1927, was only 122 bbls. and on January 1, 1928, 56,000 bbls. Crane County, Texas, increased from 6,800 bbls. to 108,000 bbls., and Earlsboro, Okla., from 9,000 bbls. to 117,009 bbls. The above represents the largest production increases in 1927.

Peak of Some Pools Is Ahead

All of the Seminole pools named have passed their peak. Of the pools in which a large increase in production may be expected this year Long Beach, Calif.; Winkler and Pecos Counties in West Texas, stand out most prominently. The wildest estimates are placed on the potentialities of the Yates Pool, in Pecos County, yet no one knows what that field would do if permitted to flow at its capacity for even 24 hours. None can say whether the tremendous production which all concede it could show would stand up, say, a week. The field has been well handled thus far and the producers there are holding back the bulk of their potential output because of a lack of facilities to handle it and the low market price offered for the crude in these days of overproduction.

Seminole operators learned an expensive lesson in the past year. Had they been of the same mind in November, 1926, they were in November, 1927, Seminole would not have been permitted to yield the bulk of its production in 12 months. If West Texas operators will profit by the experience gained by the Seminole men they will cheerfully continue their policy of conservation and hold fast to the market they have, low as it is, rather than take the natural consequences of another flood of crude.

Turning from the pools that have done the damage in the past year we can now look over some of the fields that have fallen off from one New Year's Day to another. The most notable of these is Seminole City, Okla., the first of the Seminole pools, which had reached a production of 154,000 bbls. by January 1, 1927. This was the pool that caused the beginning of all last year's financial woe. It reached a peak on February 22, 1927, of 264,500 bbls. On January 1 of this year the big pool had fallen to 52,750 bbls. The famous Smackover heavy-oil pool dropped from 107,800 bbls. to 71,100 bbls. in the course of the year and the Borger Pool in Hutchinson County fell off from 140,000 bbls. to 52,740 bbls. Huntington Beach, another famous pool, slumped from 100,000 bbls. to 60,000 bbls. Spindletop's deep sand horizon fell off from 94,000 bbls. to 51,844 bbls. These were the most pronounced production drops among the 47 declining fields.

On Up Grade a Year Ago

Among the pools in the table of declining fields are a number which figured among those on the up grade a year ago. The Seminole City Pool with 154,000 bbls. on January 1, 1927, was unknown the year previous and the same may be said of Earlsboro, which was opened late in 1926. The Sholom Alechem, Oklahoma field, advanced from 1,650 bbls. to 12,750 bbls. between January 1, 1926, and the same date in 1927. Montague County in Texas increased from 800 bbls. to 12,275 bbls. in the same time. Crane and Upton Counties were out of the production column on January 1, 1926, but were producing a year ago. Nigger Creek was another development of 1926 and it was in 1926 also that the deep sand was developed in Spindletop. The production of Spindletop on January 1, 1926, was only 1,200 bbls. On January 1, 1927, it was 94,000 bbls. Seal Beach was not yet in the picture on New Year's day two years ago.

The total production of the United States on January 1, 1926 was 1,964,000 bbls. or 434,000 bbls. below that of January 1, 1928 and 634,000 bbls. below the peak on July 30, 1927. The petroleum industry developed a lot of oil in that 18-month period between January 1, 1926 and July 30, 1927.

This new year opened with all eyes on West Texas and California. The steadily declining production of the Mid-Continent fields yielding high gravity oil encouraged the producer to look for a better general situation earlier in the year than seemed possible six, and even three, months ago. Oklahoma's peak on July 30, approximately 898,000 bbls., had declined to 666,500 bbls. on January 1, a drop of 231,500 bbls. a day with good indication of a continuance in the decline, at least until new territory has been developed. North Central Texas and Kansas were giving no evidence of alarming new pools. Neither was the Rocky Mountain, Louisiana-Arkansas or Gulf Coastal territories. The whole matter of better conditions in the industry this year is in the hands of California and West Texas lease owners, and oil men all over the land are waiting to see how they handle the delicate situation.

Summary of All Pools

	Prod. Jan. 1, 1927 Bbls.	Prod. Jan. 1, 1928 Bbls.
Nineteen pools	286,417	857,611
Forty-seven pools .	1,517,707	980,854
All other pools ...	570,886	559,535
Total	2,375,010	2,398,000
	Increase Jan. 1, 1928	Decrease Jan. 1, 1928
Increase in 6 pools.	366,304	.....
Increase in 13 pools	204,890	.....
Decrease in 47 pools	.....	536,853
Decrease in other pools	.....	11,351
Total	571,194	550,204
Net increase in United States ..	20,990	

Pools Showing Increase in Production

Pool—	Prod. Jan. 1, 1927 Bbls.	Prod. Jan. 1, 1928 Bbls.
Long Beach, Calif..	94,500	118,000
Salt Creek, Wyo. ..	38,380	42,750
Inglewood, Calif. ..	25,000	31,500
Earlsboro, Okla. ..	9,000	117,009
Bowlegs, Okla.	.....	102,085
Searight, Okla. ...	.....	19,934
Little River, Okla.	.....	34,648
Sunburst, Mont. ..	9,000	9,500
Richfield, Calif. ..	20,340	22,400
Caddo, La.	14,950	15,950
Kern River, Calif..	13,300	22,400
Pierce Junction, Tex.	6,275	11,385
Gray Co., Tex. ...	9,500	18,550
Winkler Co., Tex..	122	56,000
Pecos Co., Tex. ...	.....	45,750
Crane Co., Tex....	6,800	108,550
Upton Co., Tex. ..	14,250	18,000
Seal Beach, Calif..	12,000	42,000
Sumner Co., Kans..	13,000	21,200
Total	286,417	857,611
Increase	571,194	

Pools Showing Decrease in Production in 1927

Pool—	Prod. Jan. 1, 1927 Bbls.	Prod. Jan. 1, 1928 Bbls.
Smackover, Ark., heavy	107,800	71,100
Midway-Sunset, Calif.	90,200	81,500
Hitchinson Co., Tex	140,000	52,740
Huntington Beach, Calif.	100,000	60,000
Santa Fe Springs, Calif.	45,000	38,000
Burbank, Okla. ...	48,500	38,600
Spindletop, Tex. ..	94,000	51,844
Ventura, Ave. Calif.	56,500	51,500
Tonkawa, Okla. ...	26,010	15,100
Elk Hills, Calif. ..	34,500	24,700
Archer Co., Tex. ..	30,950	21,750
Garber, Okla.	19,875	10,400
Big Lake, Tex. ...	29,125	23,350
Seminole City, Okla	154,000	52,750
Powell, Tex.	23,400	12,950
Torrance, Calif. ...	26,500	20,000
Wewoka, Okla. ...	25,400	8,945
Bristow, Okla.	23,220	18,000
Luling, Tex.	18,100	14,760
Dominguez, Calif...	19,500	13,750
Cushing-Shamrock, Okla.	21,337	21,000
Coalinga, Calif. ...	19,900	19,100
Hull, Tex.	20,000	12,700
Fullerton, Calif. ..	25,200	16,000
Teeter-Pixley, Kans.	14,000	8,800
Montebello, Calif. .	17,500	13,50
Cromwell, Okla. ..	13,510	10,60
Electra, Tex.	16,600	12,75
Rosecrans, Calif. ..	14,000	8,75
Coyote, Calif.	15,350	13,70
Smackover, Ark., light	12,940	9,20
Braman, Okla.	20,075	5,10
Healdton, Okla. ...	15,000	14,40
Wilbarger, Tex. ...	12,935	10,40
Seeley, Kans.	13,450	8,72
Mexia, Tex.	13,500	8,45
Burkburnett, Tex. .	11,350	11,71
Mirando, Tex.	16,400	8,00
Hewitt, Okla.	10,450	9,20
Urania, La.	12,190	7,85
Graham-Fox	10,400	7,40
W. Columbia, Tex.	10,500	9,02
Brown Co., Tex. ..	18,985	17,07
Shackelford Co., Tex.	13,610	5,06
Stephens Co., Tex..	10,920	8,71
Montague Co., Tex.	12,275	9,52
Sholom Alechem, Okla.	12,750	12,40
Total	1,517,707	980,85
Decrease		536,85

New Yates Proration On Proven Acreage Extended Until June

FORT WORTH, Tex., Jan. 7.—Producers in the Yates Pool in Pecos County, meeting in Fort Worth Friday morning, reaffirmed their decision of December 12 to apportion co-operatively pipe line space in the pool among producers on the basis of proportionate share of the proven acreage held by each. They also reaffirmed their previous decision to continue this program for the next six months.

The meeting was called in response to request of the Simms Oil Co., which was not satisfied with its apportionment under the new plan and submitted an alternate proposal, which was not accepted by the majority. It is understood that the Simms company reserved its vote when the reaffirmation of the December 12 plan was voted on. However, Simms company representative proposed an amendment which was adopted, whereby any producer could by 60 days' written notice, withdraw from the plan.

The presentation of this notice, it was agreed, will result in the calling of another meeting of producers to consider the causes of dissatisfaction by this producer. Presentation of this motion is taken to mean that the Simms company will adhere to the plan under these conditions, making it unanimous. On the basis of proven acreage, the Simms company is entitled to 2.6 per cent of the pipe line space from the pool. On the basis of present potential production, calculated for purposes of prorating, it had about 9 per cent. Other producers gave up enough of their allotment to allow the Simms company 6 per cent of the outlet, but the company had contended for 8 per cent.

The pool is believed capable of producing 200,000 to 300,000 bbls. daily, though its "potential," based on one-hour gauges of single wells was at the last gauge over 600,000 bbls. daily. Pipe line outlet at present is about 50,000 bbls. daily, and probably will not reach 100,000 during the life of the present agreement.

Gulf Production Co. and Transcontinental Oil Co. were not represented at the meeting but have signified their intention to abide by the decisions of the committee.

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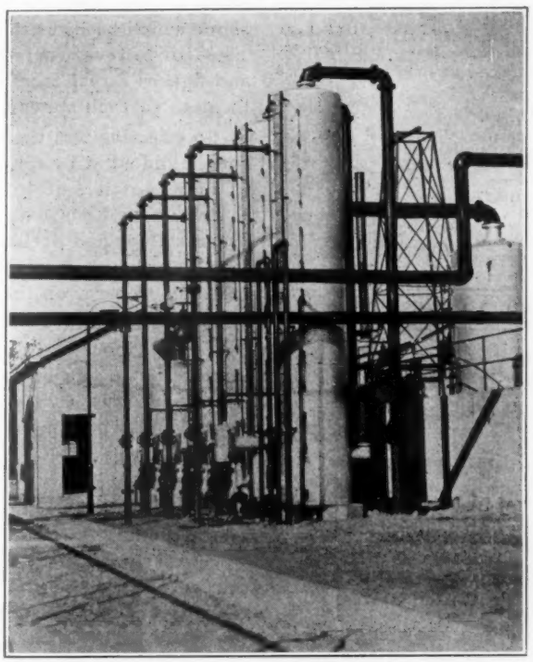

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"THROUGH GLASS POCKETS"

Copies of "The Oil Industry's Answer Today," published in the American Petroleum Institute number of The Oil and Gas Journal of December 1, have been in such demand that the "Answer" has been reprinted in booklet form for use by the industry.

As a first step The Oil and Gas Journal has arranged for delivery of a copy to every member of Congress and to leading members of the administration at Washington and has sent copies to the editors of every newspaper of standing in the United States.

Many replies have been received already acknowledging the courtesy and complimenting the presentation of the oil industry's case in a form that is readily understood, a gratifying corroboration of the belief so often expressed in these columns that the editors of the daily press are always glad to have facts placed before them for the information of their readers.

Copies of "The Oil Industry's Answer Today" are being sent also to the members of the various state legislatures and state officials interested in the operations of the industry so that they, too, may be put in position to reach correct judgments.

Public relations departments and advertising agencies in contact with the industry are being furnished copies for use in the preparation of articles or advertisements, the "Answer" being welcomed as a veritable encyclopedia of authoritative information concerning the oil business.

The public relations division of the American Petroleum Institute is finding the booklet valuable in the program of distributing information about the industry to its customers at the service stations, a plan, it may be remembered, originally advocated by The Oil and Gas Journal five years ago.

When that suggestion was broached back in 1923 only the more farseeing thought it might be worth trying. It may be admitted that at the outset probably a majority disbelieved its possibilities. The industry had for so long been the object of popular suspicion and political propaganda it seemed to many almost hopeless to attempt to get the public to give the industry a hearing.

But there were oil men who believed with The Oil and Gas Journal that popular hostility was founded on prejudice and lack of knowledge and that the American people could always be trusted to do the right thing if they were placed in possession of the facts.

It was recognized that so long as the industry remained silent and did nothing to enlighten the public there could be no hope for improvement. It was clear also that before the public could be got to listen to the oil industry's case its attention and interest would have to be attracted.

Dry presentation of facts and figures, mere statistical tables, or bald assertions of the truth about the oil business could not get far because only a few could be interested in them.

To meet this need for a "human interest" presentation of the story of the industry The Oil and Gas Journal compiled and published "The Oil Industry's Answer" of March 20, 1924, which has been described as the most serviceable and most widely circulated and generally read publicity any industry has ever had.

It appealed immediately to the man in the street who knew nothing about oil but had a natural curiosity about the fuel that made his car run, the commodity that he bought every week and about which he had heard so many conflicting stories. He was not asked to believe what the oil companies said but was given facts and figures direct from the official records of his own Government in proof of each statement.

So effective was the use made of that publication by spokesmen for the industry, by oil company and oil association advertising and in dissemination of information to the motoring public through leaflets, pamphlets and the daily press, that it was urged by oil organizations and decided at the Fort Worth meeting of the American Petroleum Institute in 1924 to establish a division of public relations to carry on the work of public information so well begun.

Today the industry is firmly convinced that its only course, as Secretary Hoover said in his famous interview in The Oil and Gas Journal, is to "do business with glass pockets," a phrase that has become historic.

So, when President Coolidge appointed the Federal Oil Conservation Board the industry, instead of hanging back and letting the board dig for its information, at once proffered its service and assistance, thereby winning the thanks of the board and confidence of the public.

Similarly when the new agitation for governmental regulation of the industry on the plea of conservation threatened to start another campaign of congressional interference leaders in the industry met the issue squarely and welcomed the offer of The Oil and Gas Journal to compile and publish "The Oil Industry's Answer Today" dealing with the whole question from a popular standpoint.

The American Petroleum Institute at its Chicago meeting at which the new "Answer" was distributed adopted a program which reconciled all differences of opinion and placed the industry in an unassailable position.

Looking back there is every reason for congratulation. A few years ago the industry was a scoffing and a by-word, a universal object of popular suspicion. Today the public is being made familiar with the problems of the oil men and an understanding popular opinion approves a Federal Trade Commission report and a Federal Oil Conservation Board policy which recognizes the needs of the industry.

But, as "The Oil Industry's Answer Today" shows, we cannot afford to rest there. The public must be kept constantly and correctly informed of all developments. The industry is entering a new era. New conditions must be explained and their effects and processes made plain beyond the possibility of misrepresentation or misunderstanding.

We must continue "to do business through glass pockets" so that we may have public support against uninformed or misinformed criticism. We must have public confidence if we are to obtain the capital necessary to carry on successfully the work of supplying the country with the products that have become so essential to the progress of our motorized civilization.

There is no more important work before the oil industry today than in extending and maintaining public understanding of its operations and service.

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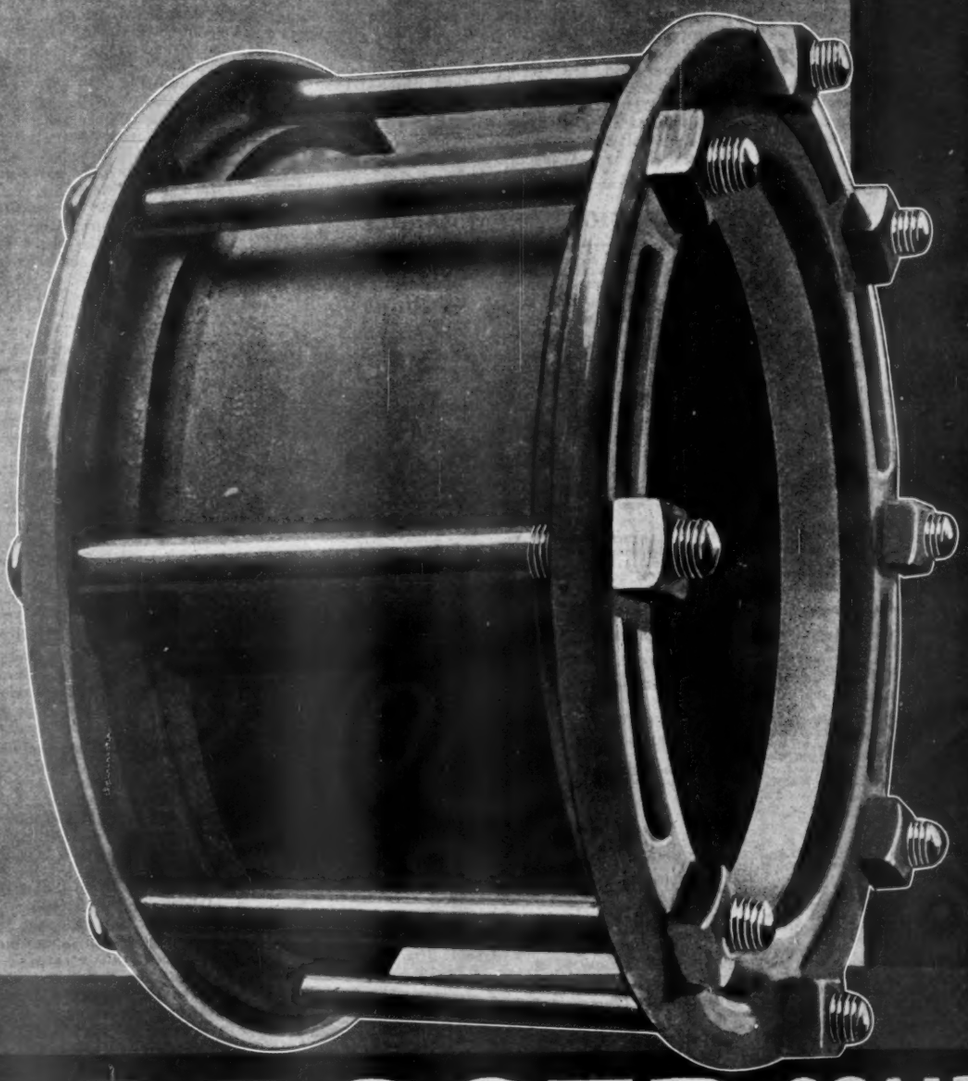


DRESSER COUPLINGS DOMINATE

New Ranger and Wichita Falls Pools

Oil in Southeast Archer and Wilbarger Wildcats. New Pool in Coleman County. Gulf Line for Gray County

By James H. Dameron
Staff Correspondent, Texas Panhandle

FORT WORTH, Tex., Jan. 9. — New pools in the Ranger and Wichita Falls districts were the principal developments in those areas during the past week, but colorful news from the Panhandle was as elusive as the proverbial needle in the hay stack.

The Bowers area in Gray County was given a more optimistic outlook when two fair wells were completed, one of which was in the southeast edge of the pool. Gibson Oil Corp.'s No. 2 Bowers-A was completed making 710 bbls. at 3,017-19 feet. To the southeast Midwest Exploration Co.'s No. 1 J. B. Bowers, NW N half SW Section 63, was completed as a good well when it came in making 615 bbls. initially from granite wash pay at 3,054-55 feet.

Production in the Bowers area showed another decline and the county's production dropped 1,905 bbls. in comparison with the previous week's estimate. Danciger Oil & Refining Co.'s property in Gray County was making 4,780 bbls. daily and Delaney and associates' production amounted to 1,665 bbls.

Panhandle was shy on completions with only four being reported from the entire area. Two were gas wells and the other two were oil wells completed in the Bowers Pool. New locations totaled four, with two of them being made in the area opened by the McAuley area in eastern Gray County. The latter well is still being cleaned out and is expected to be completed soon and will probably open a brisk play in that general area.

Line Into Gray County

Further evidence of the demand for Gray County crude is viewed in the announcement of the Gulf Pipe Line Co.'s plans to build a line into the Gray County areas and post prices there. It is presumed the posted prices will be in accordance with other prices being posted in Gray County.

Gulf Production Co. has around 1,500 bbls. of daily production in Gray County from six leases. Gulf Pipe Line Co. is joint owner with the Magnolia Pipe Line Co. of one of the Panhandle's trunk outlets. A 24-mile 6-inch line will be built from Panhandle station in Carson County to the Gulf company's Worley lease in Section 83, Block 3, in the Pampa Pool. Four-inch lateral lines will be extended from the station on the Worley lease. The line is expected to be completed by the middle of February.

Production declined throughout the Panhandle as the recent cold wave made its effect manifest. Every county contributed to the decline, with Gray leading with a 2,000-bbl. drop. Production by counties follows:

Carson	7,540
Gray	16,650
Hutchinson	51,300
Moore	0
Potter	25
Wheeler	1,155
Total this week	76,670
Total last week	80,235
Decline	3,565

Completions in the Panhandle counties were as follows:

Carson County

The Texas Company's No. 1 Charles Kalka is making 37,000,000 feet of gas from 2,300 to 2,533 feet.

Gray County

Danciger Oil & Refining Co. and associates' No. 4 W. Jackson swabbed and flowed 230 bbls. the first 24 hours from granite wash pay at 2,990-95 feet; total depth 2,533 feet. Gibson Oil Corp.'s No. 2 J. B. Bowers flowed 856 bbls. the first 24 hours from granite wash pay at 2,990 to 3,000 feet and 3,117-19 feet.

Hutchinson County

Phillips Petroleum Co. and White Eagle Oil & Refining Co.'s No. 1 Lee Bivins was good for 246 bbls. from 2,993-98 feet before a shot but after a 10-quart shot in that formation the well was completed as a 26-bbl. pumper; total depth 3,001 feet.

Wichita Falls Area

In the Wichita Falls district two areas are holding the interest of operators, one of which marks the first discovery for the new year. Panhandle Oil & Refining Co.'s No. 1 Garvey in the SE of Section 1,856, T. E. & L. Survey, southeast Archer County, has a hole full of oil from sand at 764-65 feet. The well is being cleaned out and is to be drilled deeper.

Nearest production to the wildcat is the Moran shallow pool around 1½ miles to the south. The well is located near the Young County line. Panhandle company drilled the biggest flush well in the Wichita Falls district last year on its McCluskey lease in Young County and is credited with drilling the first wildcat strike this year.

Another wildcat holding interest for the operators is Staley & Wynne's No. 1 W. T. Waggoner, Section 9, H. & T. C. R. R. Survey in Wilbarger County. The well has 1,800 feet of fluid in the hole from sand at 2,435-36 feet. It is showing a little water and is estimated to be an 80-bbl. well. The Texas Company some time ago bought the controlling interest in the well. The discovery was made a few weeks ago but due to a series of misfortunes completion has been delayed. Five and three-sixteenths inch casing was set with burlap packing at 2,436 feet and the hole is being cleaned.

The Texas Company completed No. 4 Waggoner-B, Section 17, Block 4, in southeast Wilbarger County, in broken oil sand at 2,362-78 feet. The well is swabbing 10 bbls. per hour and extended production of the pool 825 feet north of the discovery well.

Gulf Production Co.'s No. 1 Tim Lyles in the old Bunger Pool south of Graham in South Young County may revive that old area. No. 1 Lyles topped the lime at 3,871 feet and started making 3,000,000 feet of gas and spraying some oil. Casing is being run and the wells is to be drilled deeper.

New Coleman County Pool

A wildcat opening a new pool in Coleman County was completed during the week and a big well near Breckenridge rounded out the week for Ranger district operators.

Eastland Oil Co. and associates' No. 2 Morris, about the center of the William Webber Survey No. 722, Coleman County, opened what is believed to be Fry sand production 6 miles northeast of Coleman when it was completed as a 320-bbl. well at 2,100-04 feet. Eastland Oil Co., Chestnut & Smith Corp., Kerr and Gillette are discoverers of the pool. Those interests own the bulk of the acreage in that survey. Other owners are the Amerada Petroleum Corp., The Texas Company, Sun Oil Co., White Eagle Oil & Refining Co., Diana Oil Co. and Texas Fidelity Oil Co. The Sun Oil Co. owns the east offset 40 acres jointly with the Eastland Oil Co. and the latter company will operate the property. Locations have been made for the east offset, south offset and southeast offset, all locations to be drilled by the pool discoverers.

Four miles northeast of Breckenridge Pender Production Co.'s No. 6 Keel, Section 6, Block 5, T. P. R. R. Survey, barely scratched the top of black lime at 3,225 feet and made 1,000 bbls. the first 24 hours. The well is an "inside" well and came in last Friday. It is the biggest well drilled in the Breckenridge territory in the past two years.

RANGER DISTRICT

Coleman County

Eastland Oil Co. and Chestnut & Smith's No. 2 Morris was completed for 320 bbls. at 2,100-04 feet. This well has been flowing for a couple of weeks.

Brown County

Amerada Petroleum Corp.'s No. 4 Gilbreath made 34 bbls. after a 3½-quart shot in sand at 1,330-43 feet. Cranfill & Reynolds' No. 1-B DeBusk was dry and abandoned at 1,408 feet, sand at 1,313-17 feet having been dry. Daniels and others' No. 1 Allcorn made 115 bbls. after a 10-quart shot at 1,125-34 feet.

Dozier and others' No. 1 Cason, Jr., topped the Caddo Lime at 1,551 feet but was plugged and abandoned at 1,605 feet. Gilman & McMurray's No. 1 Hickman was also a failure at 1,307 feet and Warren Development Co.'s No. 1 Fannie Allcorn was plugged at 1,771 feet after a 200-quart shot failed to get results. Wheelock & Collins' No. 7 Smith had sand at 1,328-35 feet, total depth 1,336 feet, and was good for 35 bbls.

The Ditto Oil interests plugged and abandoned their No. 1 Taylor at 1,485 feet. Hammon & Garrett's No. 1 Allen heirs was a duster at 1,340 feet. Humphrey Brothers' No. 1 Beasley was dry and abandoned at 1,472 feet. So was Lamb and others' No. 2 Gwathney at 1,501 feet. Massey's No. 1 Stewart was plugged as a duster at 1,684 feet.

Panuco Exploration Co.'s No. 1 Shipman was shut down for orders at 1,348 feet, flowing about 1,000,000 feet of gas from lime at 1,312-48 feet. It will be drilled deeper. West Texas Land Co.'s No. 1 Gwathney was estimated to be

(Continued on Page 138)

WILDCAT OPERATIONS IN PANHANDLE

Week Ending January 7, 1928

Company, Well, Farm, Name, Section and Block—	Remarks—
ARMSTRONG COUNTY	
United Oil & Trust Co.'s No. 1 J. P. Rock, Sec. 162, Blk. 4, H. & G. N. Sur.	Fish. for bit, 2,260 ft.
BAILEY COUNTY	
Gibson Oil Co. et al's No. 1 Webb Miller, NE cor. Sec. 15, League 186, Swisher County school land	Rig.
Humble O. & R. Co.'s No. 1 W. H. Fuqua, C E ½, Sec. 117, Blk. A, Melvin, Blum & Blum Sur.	Drlg., 2,575 ft.
BRISCOE COUNTY	
C. S. Rice's No. 1 J. C. Anderson, SE cor. NW NW, Sec. 22, Blk. B-3, B. S. & F. Sur.	S.D., 1,620 ft.
CARSON COUNTY	
Amatex Dev. Co.'s No. 1 E. S. Polling, Sec. 22, Blk. 2-Y	T.A., 2,110 ft.
Marston Oil Co.'s No. 1 J. L. Noel	S.D., 3,064 ft.
Navajo Oil Co.'s No. 1 E. S. Polling, Sec. 22, Blk. 2-Y	Set. 6-in., 2,496 ft; S.D., 2,712 ft.
The Texas Company's No. 2 C. R. Garner	26,000,000 ft. gas, 2,300-25 ft; rig burned; rebuild. rig.
Willis et al's No. 1 Burnett est., C SE SW NW, Sec. 111, Blk. 5	T.D., 3,050 ft; C.O.; show oil, 3,-010 ft; show wtr., 3,040 ft; lime; pull. 6-in., 3,192 ft.
CASTRO COUNTY	
Colorado O. & R. Co.'s No. 1 M. Slemmons, SW cor. Sec. 73, Blk. M-17, B. S. & F. Sur.	Rig blown down.
Mystery Oil Co.'s No. 1 J. L. Crum, SE cor. NE, Sec. 223, Blk. M-6, S. K. & K. Sur.	S.D., 510 ft. for casing.
CHILDRESS COUNTY	
Hoover & Calloway's No. 1 O. L. Tucker, Sec. 736, Haggard Sur.	Spudded and S.D.
C. L. Sloane et al's No. 1 B. P. Smith, Sur. 49, F. P. Knott lands	Set 6-in., 2,902 ft; S.D., 3,650 ft.
COTTLE COUNTY	
Exploration Co.'s No. 1 Richards	Spudded and S.D.
DALLAM COUNTY	
Wood Bros. et al's No. 1 Capitol Synd., Sec. 19, Blk. 17	Hole full wtr., 4,007-4,127 ft; T.D., 4,128 ft; S.D. until spring.
Marland Oil Co.'s No. 1 A. M. James, C SW W ½, Sec. 21, S. H. McElreath Sur.	Fish., 2,625 ft.
Marland Oil Co. et al's No. 1 Capitol Synd., Sec. 36, Blk. 18, Capitol Synd. land	Drlg., 4,196 ft.
DONLEY COUNTY	
A. T. Drlg. Co.'s No. 1 F. E. Harrington, Sec. 59, Blk. 3-C	1,200 ft. wtr., 3,115-22 ft; show gas, 3,140-60 ft; dry G.W., 3,-260-93 ft; S.D., 3,498 ft.
FLOYD COUNTY	
Explin. Co.'s No. 1 S. H. Boone, C. C. H. Johnson Sur.	Spudded and S.D.
Explin. Co.'s No. 1 Land & Cattle Co.	S.D., 780 ft. for orders.
Hoffer Oil Corp.'s No. 1 Nelson	Spudded and S.D.
GRAY COUNTY	
Archer Blake's No. 1 Turneaux, SW cor. Sec. 111, Blk. B-2	S.D., 255 ft.
Bay Shore Oil Co.'s No. 1 C. W. Bradford, Sec. 143, Blk. 2-B	T.D., 2,666 ft; S.L.M, shot with 10 qts. to loosen bit and 8-in collapsed; drlg. up 8¼-in.
Biggs et al's No. 1 Morse, SW cor. Sec. 3, Blk. 26, H. & G. N. Sur.	Location.
Camel Oil Co.'s No. 1 B. E. McKinney	Rig.
Cole O. & G. Co.'s (was Magdalene Oil Co.'s) No. 1 J. E. Williams, Sec. 17, Blk. 1	S.D., 3,860 ft.
Danciger O. & R. Co.'s No. 5 W. Jackson	Drlg., 2,582 ft.
Danciger O. & R. Co.'s No. 6 W. Jackson, Sec. 88, Blk. B-2, H. & G. N. Sur.	Drlg., 2,361 ft.
Danciger O. & R. Co.'s No. 7 W. Jackson, Sec. 88, Blk. B-2, H. & G. N. Sur.	Drlg., 2,440 ft.
Danciger O. & R. Co.'s No. 8 W. Jackson, NE cor. NW, Sec. 88, Blk. B-2	Drlg., 2,019 ft.
Danciger O. & R. Co.'s No. 1 A. Chapman, SW cor. NW, Sec. 7, Blk. 26, H. & G. N. Sur.	Location.
Donley Gray Oil Co.'s No. 1 J. W. Gordon, Sec. 79, Blk. 3	Wtr. 3,380 ft. and 3,420 ft; show oil; H.F.W., 3,650; S.D., 3,870 ft.
Delaney et al's No. 2 Jackson	3,000,000 ft. gas, 2,590 ft., increased to 11,000,000 ft. at 2,760 ft. drlg., 2,994 ft; show oil, 2,-850-77 ft; T.D., 3,054 ft; P.B. to 3,025 ft; had 1,500 ft. salt wtr., 3,053-54 ft; shot with 120 qts., 2,977-3,025 ft. and bridged; C.O.
Edwards et al's No. 1 E. J. Case, NE cor. Sec. 182, Blk. B-2, H. & G. N. Sur.	70,000,000 ft. gas, 2,512-2,630 ft; drlg. by bit, 3,028 ft; 1,000 ft. oil in hole.
Gardner et al's No. 1 G. H. Saunders	Rig.
Gibson Oil Corp.'s No. 2 J. B. Bowers	Stdzing., 2,805 ft.
Gulf's No. 2 Bowers, 990 ft. from S. line and 330 ft. from W. line of W half, Sec. 89, Blk. B-2, H. & G. N. Sur.	Set 8-in., 2,939 ft.

(Continued on Page 143)

Fisher County Wildcat Makes 99 Bbls.

New West Texas Producer 24 Miles From Other Production. Water Problem Bothering Winkler Operators

By D. C. Lockwood
Staff Correspondent, West Texas Fields

FORT WORTH, Tex., Jan. 9.—A wildcat well in Fisher County which swabbed 99 bbls. this morning, the first production in the county, was one of the high lights of the development in West Texas. A gas blowout in the Amerada Petroleum Corp.'s No. 1 Walton, northeast of the Hendricks Pool in Winkler County and the appearance of large volumes of fresh water in several of the wells, flowing between the casing from shallow depths, also figured in the news.

West Texas production this week was 260,758 bbls., a decrease of 6,310 bbls. from the figures of the previous seven days. Crane County was responsible for the drop, both Pecos and Winkler having shown gains. The latter county increased more than 7,000 bbls. and is due to take another jump because the daily average for the past week is shown as 63,123 bbls., while the output has been running around 75,000 and 80,000 bbls. the past few days.

The Fisher County wildcat is The Texas Company's No. 1 Stevens, located 990 feet west and 330 feet north of the SE cor. Section 79, Block 1, H. & T. C. Survey, just about 2 miles northeast of the town of Royston and some 23 or 24 miles northwest of the Noodle Creek Pool in Jones County. Pay was just barely scratched at 3,240 feet last Thursday night and the tools were taken from the hole following the first puff of gas. Oil started coming in the hole shortly afterward and gradually filled it up to within about 150 feet of the top. The well staged a 30-bbl. flow Friday and another Saturday. Sunday it flowed 57 bbls. in about 15 or 20 minutes as a result of agitation and later in the day swabbed 18 bbls. before the swab runners went bad, leaving about 1,900 feet of oil in the hole. Monday it swabbed 99 bbls. from 9 a. m. until noon and the fluid was lowered to 300 feet. Elevation of this test is 1,927 feet and top of lime as correlated by one of the major companies is 3,190 feet. The 6-inch casing was cemented at 3,163 feet leaving 77 feet of open hole. A liner was run Sunday and three 500-bbl. tanks were set. The well is nicely situated for handling the oil as it is only 2 miles from the M. K. T. Railroad and the production can be run from a loading rack to The Texas Company's tanks at Moran in Shackelford County.

Not Greatly Excited

Merry Brothers & Perini, independent operators of Fort Worth, were responsible for this test, having blocked the acreage more than a year ago. Oscar E. Hans, field geologist, mapped the surface structure for them and found one of the most pronounced nosings in that part of the country. Merry Brothers & Perini assembled 7,240 acres and sold 5,240 acres to The Texas Company for $65,000 and a 3,500-foot well. They also sold the Midwest Exploration Co. a spread of 400 acres for $10,000. Sinclair Oil & Gas Co. has the only piece close to the well not owned by The Texas Company. This is an offset to the south containing 120 acres and was purchased before the block was assembled.

The discovery of this oil has not occasioned very great excitement, largely due to the fear that it may prove similar to the Campbell and Midwest well south of Anson in Jones County. That is, it may have only a couple of feet of pay and not materialize in proportion to its promise. However, it undoubtedly shows promise and may have opened up a real pool. The pay correlates about 200 feet lower than the Noodle Creek horizon and somewhat higher than the pay found in the Ideal Oil Co.'s No. 1 Martin, about 7 miles north of it. It really correlates with a water sand in the Ideal well. According to the best correlation obtainable, The Texas Company's No. 1 Stevens is about 148 feet higher on top of the lime than the Ideal well which had a show of oil at 3,390-96 feet. Cranfill & Reynolds' No. 1 Young, in Section 208, B. B. B. & C. Survey, a couple of miles east of the new producer, is running just about 20 feet higher structurally than No. 1 Stevens. Because of regional dip in that direction, it should be considerably higher than that, therefore it is believed possible that the new well may be situated on a subsurface closure, or at least the subsurface nose seems to be as pronounced as the surface structure indicates.

The Amerada Petroleum Corp.'s No. 1 Walton, SW cor. NW, Section 48, Block 26, in Winkler County, is now in the worst shape it has ever been in since the first fishing job weeks ago. About the middle of last week the casing was unscrewed below the tools and the accumulated gas pressure blew the tools and about 700 feet of casing out of the hole, wrecking the rig. The gas volume is estimated at 50,000,000 feet, and reports Monday state that 4,000 bbls. of brackish water is coming with it. This is upper waste water, however, and is coming from the open hole. The Amerada superintendent left for the field Monday to determine what could be done with the well. Reports were current during the week that No. 1 Walton was also spraying oil but these were declared to be without foundation.

Southern Crude's No. 1 Hutchings, southwest diagonal offset to No. 1 Walton, topped the lime Monday at 2,340 feet and is now running 8-inch casing. The owners are taking precautions against the trouble encountered in the offset by cementing with 500 sacks. The elevation of No. 1 Hutchings is 2,835 feet, 2 feet higher than No. 1 Walton, so the top of the lime is about the same in both wells, structurally.

Water Problem Serious

The water problem is wreaking havoc in the Winkler County Field, not from the bottoms of the wells but from upper strata, and any well which has a bad casing job is in a sad situation. Gulf Production Co.'s No. 8 T. G. Hendricks in the SE cor. NW of Section 34, Block B-5, topped a water sand at 1,641 feet which flowed 16,000 bbls. of fresh water the first day and made 10,000 bbls. daily for several days. Members of the Oil and Gas Division, State Railroad Commission, visited the field to study the water situation and advised the Gulf to let the well flow for a time in order to study the problem. When the pressure on some of the shut-in gas wells was released Saturday the Gulf well stopped flowing and the surface casing was recemented at the top.

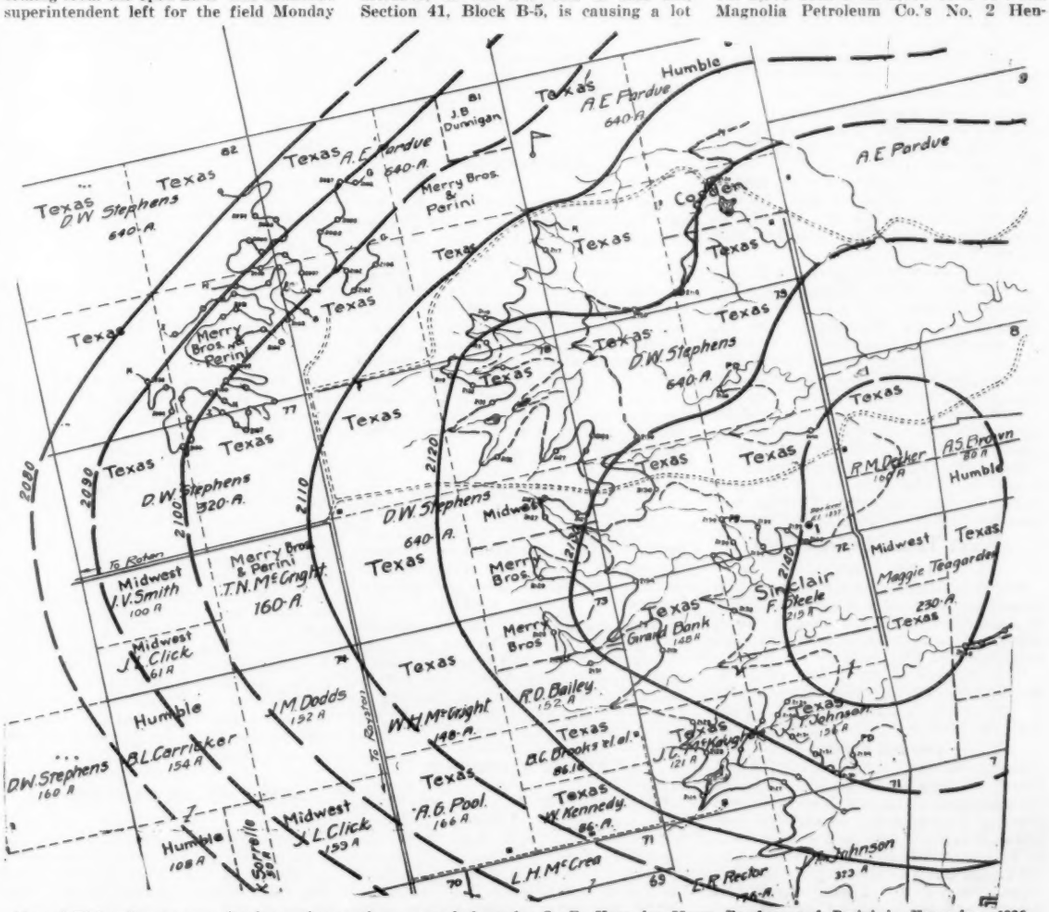
Republic Production Co.'s No. 1 Hendricks-B, in the SW cor. E half SE. Section 41, Block B-5, is causing a lot of trouble. This well was junked a couple of months ago and a new hole started. The twin well ran into a pocket of gas last week and started blowing water out between the casing in surrounding wells. Six neighboring wells are affected in this way and operations have been seriously hampered in that part of the field. The tests which are making from 1,000 to 10,000 bbls. of salt water daily between the casing are Atlantic Oil Producing Co.'s No. 1 Hendricks-C, in Section 40, Block B-5; Eastland Oil Co.'s No. 1 in Section 35; Republic's No. 2-B in Section 41; Southern Crude's No. 2, Tract-68-3-A, in Section 35, and No. 3 on the same tract; and Murchison and others' No. 3-B.

Another rig was wrecked when Texon Oil & Land Co.'s No. 2 Hendricks-A, in Section 41, struck gas which blew the tools out of the hole.

Roxana Petroleum Corp.'s No. 2 Hendricks-C, SE cor. N half NW, Section 29, Block B-5, came in Sunday making 320 bbls. per hour, open, but had 33 per cent water. It was pinched down to 3,540 bbls., however, and made only 2 per cent water. This well is 660 feet south of the big No. 1-C which has not yet been affected by water. As a result of No. 2-C's showing, Roxana is starting up Nos. 3-C and 4-C.

Affected by Water

Atlantic Oil Producing Co.'s No. 1 Hendricks-D was showing only 1.5 per cent water Monday. Humble Oil & Refining Co.'s No. 1 Hendricks-B treated out 1,905 bbls. from 2,350 bbls. of fluid. Magnolia Petroleum Co.'s No. 2 Hen-



Map of Fisher County area showing surface geology as worked out by O. E. Hans for Merry Brothers and Perini in November, 1926. Part of lease ownerships are also shown.

dricks treated out 720 bbls. from 8,000 bbls. of fluid. Gulf Production Co.'s No. 1 Hendrick made 105 bbls. of clean oil out of 450 bbls. of fluid.

Southern Crude's No. 4 Tract 88-C started flowing water around the pipe Monday.

Landreth Production Co.'s No. 4 Hendricks-A, in NE cor. SW. Section 29, offsetting the Magnolia's No. 2 has not made any water since the first day. It has been pinched slightly since then.

Atlantic's No. 2 Hendricks-D, in Section 29, south offset to Roxana's No. 2 Hendricks-C, came in for 1,839 bbls. with no water at 2,992-3,000 feet. Atlantic's No. 2 Hendricks-A, in Section 34, north offset to Roxana's No. 1-C, bailed dry at 3,000 feet and is being prepared for a shot.

Independent Oil & Gas Co.'s No. 1 Vardeman-B, SE cor. E half NW of Section 41, Block B-5, made 210 bbls. Monday at 2,575-80 feet and will be drilled deeper. This well is half way between the main pool and the north extension.

Southern Crude's No. 1 Tract-88, Hendricks-I, in NE cor. Section 30, Block B-5, topped lime at 2,661 feet and has surface elevation of 2,812 feet.

Sheldon & Burden's No. 1 Hendricks in SW cor. SE, Section 28, Block B-5, was last reported drilling at 2,785 feet and making 20 bbls. of oil daily. This is an extension to the southeast nearly a mile. The well ran a little low structurally, topping the lime about 190 feet above sea level.

Yates Pool Completions

The usual group of gushers in the Yates Pool came in this week and will be found listed under the completions. Allsman & Bell's No. 5 River Bed flowed 200 bbls. an hour, 50 per cent water Saturday at 935 feet. Mid-Kansas and Transcontinental's No. 18 Yates-B, just northwest of Gulf's No. 3 Thompson, topped water sand at 1,108 feet and sulphur water slopped over the control head. The casing was cemented and the well was standing at latest report. This is practically between Gulf's No. 3 Thompson and the Pool, and the Gulf well made 412 bbls. flowing open, with no water.

Osage Oil Corp.'s No. 1 Halff, south of Gulf's No. 1 Thompson, flowed 327 bbls. in 30 minutes when opened for a brief test last week. Correlating the pay horizon, this well is lower than No. 1 Thompson. Simmons Oil Co. and others' No. 1 Halff, in Section 69, south of the Osage well and on the Crockett County side of the river, looks like a dry hole. Its surface elevation is 2,157 feet and it was drilling in anhydrite at 1,255 feet Saturday.

Humble Oil & Refining Co. is looping its line from Lytle Station, Atascosa County, southwest of San Antonio, to Ingleside and the Illinois Pipe Line Co. is laying its line from Del Rio to Lytle Station. Humble will handle 20,000 bbls. daily of the Illinois Pipe Line Co.'s oil from the Yates Pool.

Shell Pipe Line Co. has completed its 6-inch line from the Yates Pool to McCamey.

Gulf Pipe Line Co. is extending its 8-inch from McCamey to its McElroy station in Crane County. The line now runs from the Yates Pool to McCamey.

West Texas Completions

Crane County

Simms & Atlantic's No. 8 University-D topped pay at 2,815 feet and was drilled to 2,963 feet, making 20 bbls. per hour. After a 210-quart shot at 2,831-2,941 feet it increased to 1,850 bbls.

Gulf Production Co.'s No. 45 J. T. McElroy flowed 510 bbls. after a shot of 180 quarts at 2,770-2,894 feet. Total depth is 2,900 feet.

Crockett County

Osage Oil Corp.'s No. 1 Halff, which flowed 327 bbls. in 30 minutes this week when opened for a half-hour test, was listed as a completion, pay having been found at 1,050-51 feet. Bob Penn's No. 1 L. P. Powell was dry and abandoned at 3,002 feet, having encountered 2,600 feet of sulphur water at 2,765 feet. W. M. Schaffer and others' No. 1 University was completed for 5 bbls. on the pump. This well topped pay at 2,138 feet and was drilled to 2,368 feet. It was shot with 220 quarts from 2,133 to 2,173 feet.

Howard County

Coyle-Concord Oil Co.'s No. 1 Dora Roberts made 1,000,000 feet of gas at 1,640-50 feet and had oil sands at 1,705-12 and 1,860-90 feet. After a shot of 40 quarts it was good for 75 bbls. Same company's No. 2 Dora Roberts had sand at 1,850-70 feet and after a 40-quart shot made 80 bbls. Marland Oil Co.'s No. 6 Clay-A, which swabbed 68 bbls. from sand at 1,821-34 feet, total depth 1,837 feet, made 72 bbls. on the pump. Same company's No. 7 Clay-A, which swabbed 54 bbls. at 1,824-37 feet as a result of a 10-quart shot, pumped 75 bbls. initial.

Ector County

The Texas Company and J. S. Cosden's No. 5 Connell, SE cor. Section 24, Block B-16, was abandoned at 4,027 feet. Elevation is 2,845 feet, top of salt 960 feet, top of lime 3,375 feet. It had a show of oil at 3,624-29 feet and sulphur water at 3,959 feet, with a big increase in water at 4,007 feet.

Pecos County

Humble Oil & Refining Co.'s No. 3 Smith-B flowed 45 bbls. per hour at 1,316-1,460 feet. Gulf Production Co.'s No. 3 Smith-A increased to 178 bbls. hourly at 1,638-52 feet and was completed at 1,688 feet for estimated initial of 4,200 bbls., although it was pinched to 1,145 bbls. Top of lime was 1,488 feet and top of pay 1,491 feet.

McMan & Marland's No. 13 Yates flowed 50 bbls. per hour at 1,315-1,450 feet; No. 14 Yates flowed 65 bbls. hourly at 1,350-1,450 feet.

Mid-Kansas and Transcontinental's No. 17 Yates-B flowed 950 bbls. per hour, open, at 1,010-75 feet; No. 4 Yates-C flowed 550 bbls. per hour at 1,102-44 feet; No. 9 Yates-C flowed 515 bbls. the first 8 hours at 915-60 feet.

Roxana Petroleum Corp.'s No. 1 J. H. Tippett, which flowed 180 bbls. an hour before deepening, increased to 347 bbls. hourly at 1,502 feet. Top of pay was 1,356 feet. Same company's No. 4 J. H. Tippett flowed 700 bbls. per hour at 1,253-1,425 feet; No. 5 flowed 740 bbls. per hour at 1,248-1,352 feet and made 3,000,000 feet of gas; No. 7 was flowing 265 bbls. per hour from pay topped at 1,180 feet while drilling at 1,195 feet.

The California Co.'s No. 5 Smith, Lease 3, topped pay at 1,500 feet and at 1,648 feet flowed 273 bbls. per hour; No. 7 on the same lease flowed 990 bbls. while drilling at 1,216 feet in pay topped at 1,145 feet.

Stonewall County

Peer Oil Corp. and Producers Oil Co.'s No. 1 R. P. Morrow was dry and plugged at 3,038 feet.

Upton County

Texas Pacific Coal & Oil Co.'s No. 11 Lane-A swabbed 100 bbls. after plugging back from 2,071 to 2,068 feet. Top of pay was 1,910 feet. The Texas Company's No. 4 J. M. Perry flowed 150 bbls. an hour, 36 per cent water, from pay at 1,993-2,065 feet; No. 5 J. M. Perry pumped 25 bbls. of oil and 15 bbls. of water at 2,015-69 feet.

Winkler County

Atlantic Oil Producing Co.'s No. 1 Hendrick-D was temporarily completed for 2,853 bbls. at 2,870-3,015 feet; No. 2-D was also temporarily completed for 2,260 bbls. at 2,992-3,000 feet. Southern Crude Oil Purchasing Co.'s No. 2 Hendrick Tract 88-C made 1,365 bbls. initial at 2,805-2,992 feet; No. 3 was temporarily completed for 1,200 bbls. at 2,795-3,025 feet. It had an increase in production at 3,020 feet.

WILDCAT OPERATIONS IN WEST TEXAS

Week ending January 7, 1928

ANDREWS COUNTY

Company, farm and location—	Remarks—
George B. Calvin's (was Calvin & Belt's) No. 1 Ratliff & Bedford, C NE Sec. 16, Blk. A-54	Hole full fresh water 1,055 ft.; top salt 1,610 ft.; shut down 4,003 ft.
J. S. Cosden's No. 1 Ratliff & Bedford, C SE Sec. 8, Blk. 73, Public School Land	Top salt 1,585 ft.; shut down 4,150 ft.
Deep Rock Oil Co.'s No. 1 W. J. Harris, C SE Sec. 12, Blk. A-46, Public School Land, elev. 3,167 ft.	Hole full fresh water 1,050 ft.; shut down 1,425 ft.
B. B. McKennon's (was Neff et al's) No. 1 J. S. Means, C SE Sec. 12, Blk. A-35, Public School Land	Set 8-in. 1,580 ft.; shut down 1,620 ft.
A. G. Carter & Zweifel's No. 1 Cowden, C SE Sec. 18, Blk. A-52, Public School Land Sur., elev. 3,156 ft.	Top salt 1,375 ft.; encountered pocket of air 3,635 ft.; total depth 5,000 ft.; contract complete.

BORDEN COUNTY

Dixon Creek Oil Co.'s No. 1 Clayton & Johnson	Location.
Marland Oil Co.'s No. 1 G. E. McDavid, C SW Sec. 156, Blk. 25, H. & T. C. Sur., elev. 2,310 ft.	Set 12-in. 1,375 ft.

BREWSTER COUNTY

Cowden & Bowser's No. 1 Jackson & Harmon	Drlg. 600 ft.
J. M. Hickey's No. 1 Jackson & Harmon, NE cor. Sec. 182, Blk. 9, G. H. & S. A. Sur.	Shut down 910 ft.
Mid-Kansas O. & G. Co.'s No. 1 Turney, Sec. 77, Blk. 213, T. & St. L. Sur.	Drlg. 2,660 ft.
Reese & White's No. 1 Kimbale, C NE Sec. 204, Blk. 9, G. H. & S. A. Sur.	Underreaming 6-in. 1,306 ft.
Van McPhail's No. 1 McIntyre, SE cor. Sec. 59, Blk. 352, 7 mi. S of Alpine	Shut down 1,210 ft.
Wilcox & Anderson's No. 1 Gage, Sec. 8, Blk. 300, T. C. R. R. Sur.	Drlg. 1,901 ft.

COKE COUNTY

W. H. Brown et al's No. 1 W. L. Foster, SE cor. Sec. 142, Blk. 2, H. & T. C. Sur., elev. 2,222 ft.	Shut down 2,250 ft.
Danciger O. & R. Co.'s No. 1 Mrs. Byrnes, Clinton Sur.	Drlg. 3,385 ft.

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Late News from the Field

WEST TEXAS

FORT WORTH, Tex., Jan. 10.—Simmons Oil Corp.'s No. 1 Halff, Section 69, Block 1, Crockett County, south of the Yates Pool, topped the lime at 1,230 feet, found sulphur water at 1,285 feet, and is shut down at 1,290 feet. Allman & Bell's No. 11 River Bed, northeast of the Yates Pool, in Pecos River, is drilling at 1,620 feet in anhydrite.

The Texas Company's No. 1 Stevens, in Fisher County, was deepened 2 feet yesterday to 3,242 feet without increasing the oil. Top of the pay is 3,240 feet and after deepening it had 1,000 feet of oil in the hole. It will be further deepened today but now looks like about a 100-bbl. well.

CALIFORNIA

LOS ANGELES, Calif., Jan. 10.—Pacific Eastern Production Co., local representative of the Gulf interests, is reaming its Union Avenue wildcat preparatory to landing pipe. Twenty feet of good oil sand was encountered at 5,200 feet and drilling was suspended with the bit still in the pay. The prospect is exceptionally promising for production and consequently a new field. J. A. Brower picked up a fairly promising sand in the extreme southeastern part of Huntington Beach Field but the potentiality of the find is unknown on account of the faulted condition of this area.

EAST CENTRAL TEXAS

MEXIA, Tex., Jan. 9.—The Roxana Petroleum Corp. has abandoned its deep test on the Thiele land, Texas Central Railroad Survey, in Freestone County, finishing up in shale at 4,037 feet.

In Anderson County the Humble Oil & Refining Co. was fishing for drill stem in No. 3 Spencer Clemmons, Benson Survey, total depth 3,964 feet, and in sand. The same company was drilling at 2,140 feet in No. 1 Felix & Smith, Roberts Survey, same county.

TEXAS PANHANDLE

FORT WORTH, Tex., Jan. 10.—Piney Oil & Gas Co.'s No. 1 Wawker, NE cor. Section 44, Block 24, H. & G. N. Survey, about 1½ miles northwest of the Shamrock Pool in Wheeler County, swabbed and agitated 40 bbls. in 14 hours from granite wash pay at 2,343-45 feet. The well is drilling at 2,360 feet for a richer pay. The Texas Company's No. 1 J. B. Bowers, in the SW of the E half of Section 89, in the Bowers Pool of Gray County, flowed 951 bbls. the first 24 hours from granite wash pay at 2,845-52 feet.

OKLAHOMA

The Greater Seminole Field produced 348,785 bbls. for the 24 hours ending 7 a. m. Tuesday of this week. The output by pools was:

	Bbls.
Little River	36,196
Bowlegs	101,846
Earlsboro	135,273
Seminole	55,437
Searight	20,123
*Total	348,785

*From 1,070 wells.

New wells at Seminole were, Gypsy Oil Co.'s No. 3 Pottey, NE cor. NE, Section 35-8-6, which swabbed 270 bbls. from the Wilcox sand at 4,705-25 feet. Magnolia Petroleum Co.'s No. 2 Pottey, SE cor. NE, Section 35-8-6, which made 376 bbls. when placed on air. The sand in this well was 4,266-76 feet.

In the Earlsboro Pool, Barnsdall Oil Co.'s No. 2 Bruner, SE cor. SW, Section 2-9-5, made 415 bbls. when put on air from sand 4,313-22 feet. Amerada Petroleum Corp.'s No. 1 Bradley, SE cor. SW, Section 9-8-6, has 400 feet of water in the Wilcox sand found 4,345-68 feet. The hole is reported filling up. Carter Oil Co.'s No. 3 Bruner, NW cor. SE, Section 23-8-6, has 250 feet of water in the hole from sand 4,865-71 feet. Mid-Continent Petroleum Corp.'s No. 1 Smith, SW cor. SW, Section 12-8-6, made 75 bbls. on air after being shot twice in sand 4,506-24 feet.

A deep test in western Oklahoma is the Sinclair Oil & Gas Co.'s No. 1 Wilkinson, SW cor. NE, Section 2-20-5w, in Garfield County, which is dry and abandoned at a total depth of 6,253 feet.

In the Lovell area of Logan County, the Roxana Petroleum Corp.'s No. 1 McCully, the discovery well of the pool, is making 2,200 bbls. after eight months of productive life. No. 1 Stevens, SW cor. SW, Section 29-19-4w, has cemented casing at 6,092 feet.

NEW POOL IN CALIFORNIA?

LOS ANGELES, Calif., Jan. 10.—Elberta-Midway Oil Co. probably has opened up a new oil field 8 miles southwest of San Luis Opispo. The initial well came in doing 300 barrels of 16 gravity oil from 3,154 feet. The output is cutting 10 per cent emulsion.

ESTIMATED DAILY AVERAGE PRODUCTION FOR WEST TEXAS
Week Ending January 7
WEST TEXAS

	Wells	Bbls.
Big Lake Field	203	22,800
Crane County	355	95,633
Crockett County	35	3,118
Ector County	2	12
Glasscock County	1	S.D.
Howard County	115	6,500
Jones County	20	1,230
Loving County	1	65
Mitchell County	138	3,350
Pecos County	108	49,162
Runnels County	1	80
Scurry County	5	45
Upton County	290	15,640
Winkler County	50	63,123
Totals, West Texas	1,224	260,758
Totals last week		267,068
Difference		6,310

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Seminole Agreement Again Ratified

Some Operators Desired to Resume Drilling but Decision Made to Curtail Operations Until March 1

By J. L. Dwyer
Staff Correspondent, Oklahoma Fields

At a meeting held last week by the Seminole operators it was decided to abide by the agreement regarding drilling operations which is effective until March 1. There had been some desire manifested to abrogate the agreement. It is evident that that date will definitely end the shutdown agreement of Seminole unless spectacular production is found within the borders of the present fields.

The Oklahoma Corporation Commission during the week ratified the action of the producers and issued formal orders giving March 1 as the time when drilling may be resumed, and also the date upon which the ban on shooting the Little River wells will be lifted.

There are a few concerns in the Mid-Continent who are having difficulties in making crude committments from their daily production and purchases of oil, and these companies are loath to draw upon their crude stocks. The crude stocks are generally referred to as "excessive, top-heavy, out of the balance and what have you," but it seems that they must be maintained.

After experiencing a week of zero weather (a phenomenon rarely observed in Oklahoma) the production of the Seminole Field recovered sufficiently to again press the 350,000-bbl. mark. The cold caused the most rapid declines which have been observed at Seminole, and now that the weather has moderated again, the field men have bent every effort to recover the lost production, or at least make the best showing to atone for the oil lost through weather conditions. When things are back to normal again, Seminole will very likely start on the decline once more, but the drop will be rather gentle.

A line fight, almost extinct in a state where drilling wells are now set back the respectable distance of 330 feet from the line was witnessed in Muskogee County again, and at least brought that area back into the notice. It happened in the old Bald Hill Field around Section 8-15-15, where the Wilcox sand is found at 1,600 feet, and wells are usually spaced 200 feet back from the line. A 40-acre lease was sold in two parts, and the 20-acre tracts proved too much; they simply upset the peaceful atmosphere.

A careful check of pipe line runs from the Greater Seminole area since discovery to January 1, 1928, shows that the pools have recovered a total of 146,284,416 bbls. divided as follows:

Little River	5,143,897
Bowlegs	37,536,963
Earlsboro	36,536,963
Seminole	54,341,746
Searight	12,724,847
Total recovery to Jan. 1	146,284,416

There are 158 active operations in this area at present, and Earlsboro is leading the pools in point of wells drilling. By pools the operations are given below:

	Little River	Seminole	Searight	Bowlegs	Earlsboro
Locations	1	0	1	1	2
Rigs	8	0	0	7	15
Drilling					
Less than 2,000 ft.	0	1	0	4	1
Less than 3,099 ft.	2	0	0	3	6
Less than 3,700 ft.	1	0	1	8	10
Below 3,700 ft.	25	1	8	30	22
Totals	37	2	10	53	56

Pipe Line Runs

The pipe line runs from the field are practically unchanged, but the tank car shipments have dropped considerably. The runs by companies for the week ending Friday, January 6, 1927, were:

Company—	Bbls. Runs
Barnsdall	7,072
Consolidated	506
Mid-Continent	7,523
Empire	11,747
Gulf	21,794
Magnolia	39,063
Oklahoma	53,146
Ozark	15,516
Prairie	55,648
Pure	1,380
Shaffer	5,931
Sinclair	43,526
Texas	30,041
Tidal	3,350
White Oak	1,970
Total	298,214

The tank car shipments for the same period averaged 4,000 bbls. per day dropping from 17,000 bbls. two weeks ago.

A list of smaller pools in the State giving the production and number of wells shows:

Pool—	Wells	Prodtn.
Papoose	214	5,410
Pearson	60	7,370
Yeager	17	884
Davenport	210	2,822
Stroud	61	1,052
Skellyville	24	466
Deep Rock	24	1,087
Ingalls	9	176
Tonkawa deep	118	9,941
Thomas	21	1,804
Hubbard	69	2,856
North Braman	89	3,157
South Braman	36	1,944

Beckham County

Cal Wright and others' No. 1 Traves and others, NW cor. SE SE, Section 30-9-23w, Sayre area, is cleaning out preparatory to deepening below the old depth of 3,260 feet.

Bryan County

Magnolia Petroleum Corp.'s No. 1 Marshall, NW cor. SW NW, Section 26-5s-7, is dry and abandoned at 2,210 feet.

Carter County

C. R. Smith's No. 1-B fee, SW cor. SE NE, Section 27-2s-3w, is rigging up rotary tools. Magnolia Petroleum Corp.'s No. 1 James, NE cor. SW, Section 17-2s-2w, is pumping 40 bbls. from sand 2,328-38 feet. No. 1 Harmon, SW cor. NW SE, Section 26-2s-2w, has been abandoned at 4,205 feet.

Coal County

Indian Territory Illuminating Oil Co.'s No. 1-A Burris, C NE NW, Section 10-9-11, is drilling at 850 feet, drilling for gas to use for No. 1 well.

Cotton County

Magnolia Petroleum Corp. made location for No. 1 With-Ke-Bitty, SW cor. NE, Section 30-1s-9w.

Creek County

Gled Oil Co.'s No. 3 Knight, NE cor. NW, Section 24-19-8, is spudding. Bu-Vi-Bar Petroleum Co. has the rig up for No. 2-B Cain, SE cor. NE, Section 18-17-7. Murray Oil Co. has built the rig for No. 1 Murrell, SW cor., Section 8-19-9. Gypsy Oil Co.'s No. 8 Aubrey, NE cor., Section 24-18-11, is being deepened, now drilling at 1,650 feet. O. M. Irelan and others made location for No. 1-A Baker, SW cor., Section 11-17-10. Summit Drilling Co.'s No. 1 Gilles, NE cor. SE NW, Section 14-16-11, is spudding. Madden, Morgan & Flynn's rig is up for No. 1 Sellers, NE cor. SE SW, Section 13-15-9. Wilcox Oil & Gas Co. has the rig on the ground for No. 2 Kimble & Reading, NE cor. SE NW, Section 18-14-10.

Future Development Co.'s No. 2 Newton, NW cor. SW NE, Section 2-16-11, made 80 bbls. from the Wilcox sand 2,655-60 feet after shooting 40 quarts. Mid-Continent Petroleum Corp.'s No. 1 Harjo, SW cor. NE NE, Section 18-14-10, Hall-Donnelly Pool, was completed for 187 bbls. in Wilcox sand 3,421-23 feet.

Garfield County

Charles E. Knox's No. 1 Wells, NE cor. SW, Section 26-22-4w, Garber area, had sand 1,775-81 feet, drilled to 2,200 feet and was plugged back to 1,781 feet where it made 4 bbls.

Grady County

Oklahoma Gas Utilities Co. has built the rig for No. 4 Farwell, NE cor. SW SE, Section 23-5-8w. Magnolia Petroleum Co. made location for No. 3 Dryden, SW cor. SE SE, Section 35-5-8w. Wirt Franklin Oil Co., Marland Oil Co. and Ray's No. 4 Woods, NW cor. SE NE, Section 17-3-5w, Carter-Knox Pool, is rigging up rotary tools.

Magnolia Petroleum Co.'s No. 1 Mahret, CSL SE SE, Section 11-5-8w, has been abandoned at 4,600 feet. Oklahoma Gas Utilities Co.'s No. 3 Farwell, SE cor. SW SE, Section 23-5-8w, cemented 8-inch casing at 2,065 feet, drilled to 2,400 feet and is shut in for 40,000,000 feet of gas. Carter Oil Co.'s No. 3 McCaughtry, NW cor. SW NW, Section 26-5-8w, has been completed for 17,000,000 feet of gas at 2,400 feet. Marland Oil Co.'s No. 5 Burke, SW cor. NW, Section 16-3-5w, Carter-Knox Pool, drilled to 2,308 feet and was plugged back to 2,300 feet where it is swabbing 125 bbls. Carter Oil Co.'s No. 2 Nothaf, NW cor. SW NW, Section 22-3-5w, has been abandoned at 1,716 feet.

Grant County

Kay Oil Co.'s No. 3 Martin, NW cor. SW SW, Section 23-27-3w, Deer Creek Field, is fishing tools at 4,106 feet after deepening from the old depth of 4,019 feet. Argo Oil Co.'s No. 1 Swaggart, an old well in the SW cor. SE SE, Section 15-27-3w, has been shut in for 2,000,000 feet of gas at 4,040 feet. Blackwell Oil & Gas Co.'s No. 4 Lane, NE cor., Section 22-27-3w, was deepened from 4,125 feet to 4,159 feet and is making 30 bbls.

Lincoln County

Texas Pacific Coal & Oil Co. has the rig up for No. 2 Long, NW cor. SE SE, Section 31-17-5. Shaffer Oil & Refining Co. has the rig on the ground for No. 3 Skinner, NE cor. SW SE, Section 31-17-5.

Kay County

Boucher & Marland Oil Co. made location for No. 1 Woods, NE cor. SE, Section 25-27-2w. O'Shaughnessy and others' No. 1 Attebury, C NW NE, Section 1-27-1w, is a machine rigging up. Ivan Otstot and others' machine is rigging up for No. 1 Lewis, C NW NW, Section 1-27-1w, to drill for shallow gas. Wentz Oil Corp.'s No. 3 Country Club location was made NW cor. SW SW, Section 20-27-1w. Marland Oil Co.'s No. 1-A School Land No. 24, SE cor., Section 16-25-2w, is pulling 5-inch casing to straight ream in preparation to drill deeper.

Ivan Otstot and others' No. 2 School Land No. 76, NW cor. SE SW, Section 36-28-1w, has been completed for 1,800,-

(Continued on Page 121)

PHILLIPS PETROLEUM CO. BUYS LOST SPRINGS, KANSAS, ACREAGE

By J. L. Dwyer
Staff Correspondent, Kansas Fields

The purchase of properties in the Lost Springs district of Marion County, Kansas by the Phillips Petroleum Co. was the most important news which has emanated from that State in some time. The Phillips company has previously operated in this area through the purchase of a half interest in the original well.

The purchase of last week was made from Harwood & Winters who drilled the first producing well in this region, and the price is reported at $300,000 for the lease with the discovery well and some 1,200 acres surrounding it in every direction. This gives the Phillips Petroleum Co. a strong hand in the Lost Springs territory, and it has control of the block of leases which comprised the original block. The Sinclair Oil & Gas Co. owns a lease offsetting the discovery well which has some shut-in production upon it, and the Prairie Oil & Gas Co. also owns a producing lease in the block. Phillips now has all the rest of the acreage close to production.

This deal is naturally interesting in itself, but it is logical that it forms a portion of a policy of expansion which the Phillips company is contemplating in Kansas. Rumors have connected the Phillips name with a merger which is understood to be under consideration between them and a Kansas firm which has extensive holdings in both producing and refining facilities.

Butler County

Empire Oil & Refining Co. has the rig on the ground for No. 1 Sterling, SE cor. NW SE, Section 22-27-5. White Eagle Oil & Refining Co.'s No. 1 Thompson, NE cor. NW, Section 13-27-6, is dry and abandoned in sand 3,145-49 feet.

Chase County

Westfield Oil & Gas Co.'s No. 4 Lipps, C SW NE, Section 25-18-6, is dry and abandoned at 1,276 feet.

Chautauqua County

Griffeth, Bell and others' No. 1 Julian, NE cor. SE, Section 2-32-10, is drilling at 976 feet.

Cowley County

J. A. Hull has the rig up for No. 11 Detmer, SW cor. NE SW, Section 24-32-4. White Oil Oil is erecting the rig for No. 1 White, SW cor. NE, Section 4-33-4. Harris & Haun have a machine at the location for No. 1 Vickey, C NW, Section 17-35-3. Location has been made for No. 1 Boylan, C NE, Section 18-35-3. Roth & Farout's No. 1 Adams, SE cor., Section 32-33-4, has been completed for 462,000 feet of gas in sand 1,900-1,909 feet.

Dickinson County

Loy and others' No. 1 Sherman, NW cor. SE, Section 24-16-4, is a dry hole at 2,551 feet.

Elk County

Denton Brothers' No. 1 Denton, SE cor. NE, Section 4-30-9, is rigging up.

Greenwood County

Polhamus and others' No. 2 Holverson, SE cor. SW NE, Section 26-24-9, is drilling at 850 feet. Powell and others' rig is on the ground for No. 1 Smith, SW cor. NW, Section 8-24-11. Smith & Rockhill made location for No. 1 McNair, NW cor. SE, Section 20-26-12.

The Prairie Oil & Gas Co.'s No. 1 Brown, NW cor. SW NW, Section 11-22-10, has been abandoned at 2,290 feet. Empire Oil & Refining Co.'s No. 18 Duby, NW cor. SE SW, Section 14-22-11, made 10 bbls. after a shot of 10 quarts in sand 1,864-1,910 feet. No. 5 Demler, NE cor., Section 25-22-12, was completed

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Gulf Company Well Blows in With 10,000,000 Feet of Gas and Catches Fire. Champagnolle Well Proves Surprise

By D. H. Bancroft
Staff Correspondent, North Louisiana-Arkansas

SHREVEPORT, La., Jan. 9.—Territory for 3 miles north of the nearest production in the Richland Parish gas field was proven productive late Saturday when the Gulf Refining Co.'s No. 1 Millsaps in the NW cor NE. Section 8-17-6 blew in with an estimated 10,000,000 feet of gas, total depth 2,428 feet. The crew was coming out with drill stem to change bits and had four fourbles out when the blowout occurred, and a few minutes later sand and pebbles blown against the rotary caused sparks which ignited the gas.

At last reports the semiwildcat was still burning. The flames are spread out like a chrysanthemum, making it difficult to get at the base either to shoot or steam it out. When finally extinguished, the question will remain whether it will be finished as a gasser or the gas mudded off and the hole deepened for possible oil.

The well was begun originally for a deep test on a high dome located by a torsion balance survey and situated about midway between the nearest production in the Monroe Field on the north and the Richland Field on the south. Since it was begun, the Gulf company's has sold the gas rights on all its Richland acreage to the Palmer Corp., and final disposition of the well will be largely up to the latter. However, as it proves that area productive of gas, it is possible the Palmer Corp. will agree to its being deepened below the gas, as it is always possible to plug back and perforate.

Surprise in Champagnolle

An unexpected performance by Keen & Woolf's No. 1 Gregory in Section 10-17-14 featured the extreme southwestern production in Champagnolle Pool of Union County, Arkansas. Drilled by Garrett-Modisett Drilling Co., of El Dorado, with Keen & Woolf of Shreveport and Root Refineries of El Dorado having an interest in it, it was taken over following its initial test by Keen & Woolf and was reported January 4 as a completion on December 30, flowing and pumping 500 bbls. of fluid, of which 50 bbls. was oil through 3-inch tubing from 4 feet of sand at 2,761-65 feet. It had been pumping and running sand pump since December 7, pumping a few hours and sanding up—pulling rods, cleaning out and pumping again only to repeat the cycle day after day. A week prior to its listing, January 4, it was shut down. On January 5 it was opened and flowed 18 hours at the rate of 2,500 bbls. of fluid daily, 45 per cent salt water. And it has kept it up ever since. The oil tests 22 gravity.

What this presages for the new pool is problematical. It hasn't been sufficiently drilled to date to afford operators as much information concerning sand conditions as they would like to have and behavior of two or three completions in the field and the nature of their production, sand levels and nature of sand have all given conflicting information. It appears, however, that, substituting oil for gas, it is very much the same as the Lawson-Urbana area, 12 miles south, which occasioned considerable of a flutter a year ago when a series of gas wells gauging 50,000,000 to 70,000,000 feet per day at 1,000 to 1,200 pounds rock pressure were completed only to have salt water break in and flood them out. News from El Dorado is that the operators are not unduly excited over the field as a whole, though they are considerably more attentive and interested since the Keen & Woolf well did its stuff.

In the long run it is probable that the well will do much to encourage prospecting by individuals owning small leases as well as by the larger companies holding the majority of stuff in that territory, though the latter are committed to a policy of drilling only necessary offsets or wells to fulfill their lease contracts as long as the overproduction situation in the industry in general remains. As it is, the first week of the new year shows five new tests getting under way, three of them southwest of proven territory in Sections 1 and 2-17-14, and the others within the proven area.

Ohio Oil Co.'s No. 7 Crain in Section 1-17-14, with 4 feet of sand at 3,029-33 feet started flowing January 6 at the rate of 4,000 bbls. of fluid, 40 per cent salt water, the largest well yet brought in in the pool, ranking the Keen & Woolf No. 1 Gregory by 1,025 bbls. of oil. The question is: How long will they last at their present rate of total production as well as at their initial percentages of salt water and oil? There seems to be much doubt that they will hold up at their initial performance in either respect for any length of time as experience has shown Champagnolle producers, in most of the half dozen cases, have fallen rather quickly and that the water content of the fluid has increased. The pool is very much like the Pleasant Hill district of Sabine Parish in this respect.

Ohio Oil Co.'s No. 2 Goode in Section 2-17-14, with 3 feet of sand at 3,051-54 feet, is standing 150 feet in fluid.

Pine Island Deep Area Extended South

The first week of the new year registered a rather larger than usual crop of completions in both proven areas and wildcat territory, many of them, however, being cases where wells that have been standing as derricks, locations or temporarily abandoned for many weeks or months are dropped from the records. The 38 completions in the district netted 358 bbls. new production from 8 wells, 10 gassers with 31,425,820 feet initial flow and 20 abandoned.

Four of Caddo's five completions were in the Pine Island Pool, the fifth being Ferguson and other's No. 2 Abney, Section 7-17-16, Greenwood district, as a 3,000,000-foot gasser, total depth 1,963 feet. The Pine Island wells were Dixie Oil Co.'s No. 9 Caddo Mineral Lands, a 60-bbl. pumper in the new deep horizon of the Trinity group at 3,909 feet in Section 23-21-15, south of the main development of this horizon at present. The Texas Company got two 50-bbl. wells in the same horizon. No. 51 Caddo Mineral Lands, also in Section 23, is pumping 50 bbls., total depth 3,942 feet, and No. 10 Mabry in Section 15-21-15 pumping 50 bbls., total depth 3,930 feet. Derrick on Shreveport Oil Corp.'s No. 2 State, Section 27-21-15 is down and the well abandoned after standing shut down at 2,400 feet since July 20.

Sabine Wildcat Pays Off

In the Monroe gas district, West Virginia Oil & Gas Co. has the week's one completion, No. 5 fee, Section 5-18-4, making 3,000,000 feet of gas, total depth 2,173 feet. Arkansas Fuel Oil completed No. 1-A Logan, Section 33-10-13, 5 miles west of Pleasant Hill. Production was completed December 30, pumping 150 bbls. of fluid, 85 per cent salt water, from 2,100 feet. It had been drilled to 4,258 feet, a record for that locality, where the bottom was in lime rock. Casing sprang a leak at 1,700 feet and after cementing the outside it was found on going back in with drill stem that the casing had collapsed at 2,100 feet, and the hole was then plugged back and casing perforated at that level.

The Shongaloo gas district of Webster Parish had a small gasser in Northwest Louisiana Gas Co.'s No. 1 Munn, Section 29-23-9, total depth 2,729 feet.

Arkansas Completions

Nine tests in Ouachita and Union Counties were abandoned, dropped from the records, most of them wells that had been shut down or standing as derricks, for a protracted period. Copenhaven and others' No. 3 Berg in Section 13-15-17, Ouachita County, which has been shut down at 2 312 feet since November 3 after a show of oil September 7, was abandoned with casing left in the hole. Marine Oil Co. abandoned location for No. 5-A Hays, Section 4-16-15.

In Union County, Brown and others' No. 1 Slaughter, Section 2-17-16, was dropped from the records after standing as temporarily abandoned at 2,296 feet since May 18. Grimes Brothers completed No. 9 Van Hook, Section 7-18-14, in the El Dorado East Field, pumping 65 bbls. of oil from 18 feet of broken sand at 2,208-26 feet. Gulf Refining Co. abandoned location for No. 45 Murphy, Section 4-16-15, which has been standing as a derrick since May 25. Imperial Oil & Gas Products Co.'s No. 1 Goodwin, a Lisbon district semiwildcat in Section 26-17-16, waiting orders since January 26, was abandoned with casing left in the hole.

Keen & Woolf abandoned No. 6 Murphy, a derrick, in Section 9-16-15, and Magnolia Petroleum Co. did likewise with Nos. 3 and 4 B. T. Laney, derricks in Section 8-16-16. The company's No. 8 T. D. Murphy in Section 8-16-15, however, was completed for the second time as a salt water hole at 2,960 feet. On first completion it was listed as Broderick & Calvert's No. 7-B Murphy, making 10,000,000 feet of gas at the same depth. Magnolia cemented back to 2,445 feet, perforated casing and water rose 1,500 feet in the hole. No. 7 Wilson in Section 17-16-15 was completed the last day of the year pumping 30 bbls. from 5 feet of sand 2,480-85 feet.

Ohio Oil Co. completed No. 3 Crain, Section 1-17-14, Champagnolle, pumping 30 bbls. of oil from 8 feet of sand at 2,988-96 feet. E. N. Wood's workover of No. 2 Houston, completed the first time April 16, 1926, as an 80-bbl. pumper at 2,558 feet, was abandoned on account of salt water at 2,743 feet, leaving casing in the hole.

Seven Gassers in East Texas

Harrison and Panola Counties, Texas, had eight completions between them, one of them a salt water hole in the shallow Waskom sand—C. H. Lyons and others' No. 1 Furrh in the E. M. Jenkins Survey, abandoned at 1,037 feet. Two of the remaining seven wells were in the Waskom district, Simms Oil Co. No. 1 J. A. Pollard, in the James Short Survey, making 3,500,000 feet of gas at 1,029 feet, and Thomason and others' No. 2 Tim-

(Continued on Page 117)

NINE PERMITS IN NEVADA COUNTY; NEW NATCHITOCHES PARISH TEST

By D. H. Bancroft

SHREVEPORT, La., Jan. 9.—Permits for nine new wells to be drilled in Nevada County by J. J. O'Brien, commencement of another test in Natchitoches Parish by Lawson and Pharis, and a cross between improvement and degeneration of Benson Oil Co.'s wildcat producer in De Soto Parish are the highlights of the news from wildcat territory in North Louisiana and Arkansas for the first week of the year. There were eight completions during the week, but five of them were old tests that have been standing temporarily abandoned for from a few weeks to almost a year.

O'Brien started in Nevada County on a large scale development program not quite a year ago and has kept it up in spite of the demoralized condition of production and a very limited market for Nevada County crude. Apparently he intends keeping up the pace during at least the early part of 1928. Two weeks ago it was learned that he is planning a small refinery to handle his production in Nevada County, but since then attempts to get confirmation of the report from him, his agent or anyone else have failed.

All nine of his new locations are in Section 1-14-21, as follows: No. 1-A-5 Billy Moss, 666 feet east and 1,177 feet north SW cor. SW SE; No. 1-A-4 Billy Moss, 707 feet north and 150 feet west SE cor.; No. 2-B-5 Billy Moss, 666 feet east and 200 feet north SW cor. NW SE; No. 2-B 8, 668 feet east and 1,805 feet north SW cor. SW SE; No. 3-B-2 William Haynie, 2,526 feet west and 2,680 feet south NE cor.; No. 2-B-9 Billy Moss, 1,134 feet east and 1,805 feet north SW cor. SW SE; No. 3-B-2 William Haynie, 2,526 feet west and 2,680 feet south NE cor.; No. 3-B-3 William Haynie, 1,997 feet west and 2,530 feet south NE cor.; No. 3-B-4 William Haynie, 1,479 feet east and 2,530 feet south NW cor. NW NE; No. 3-B-7 William Haynie, 2,526 feet west and 2,380 feet south NE cor.

Benson Well Pumping Fluid

Benson Oil Co.'s No. 1 Wolff in Section 3-10-13, completed two weeks ago as a flowing well making 40 bbls., total depth 3,008 feet, did not hold up more than 10 days at that rate and had to be put on the beam. Agitation was not altogether a good thing for it, for while pumping brought production up to 103 bbls. on January 6 it is pumping fluid and not the clean oil it was making on completion.

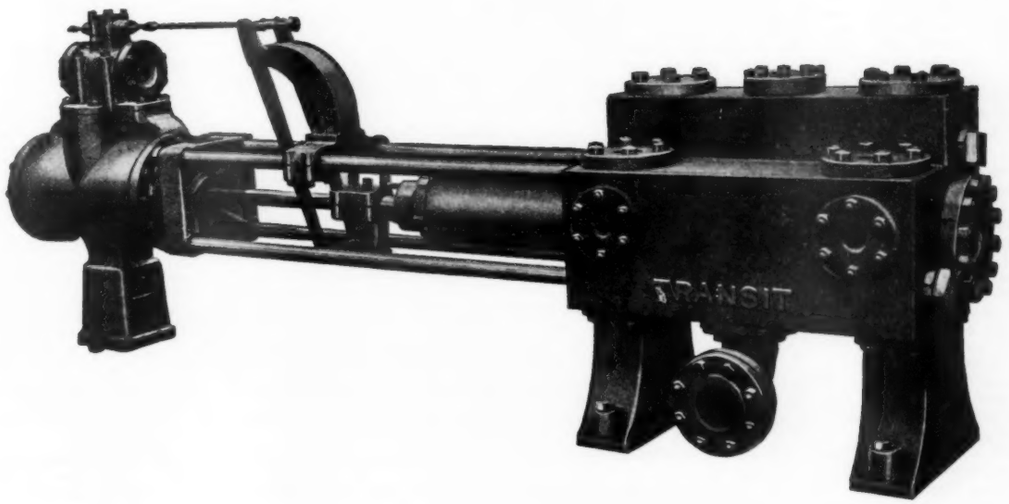
Lawson & Pharis have derrick up for No. 1 Crowell, 230 feet south and 230 feet west NE cor. Section 22-5-6, Natchitoches Parish, which, it is understood, is to be a deep test in which several of the larger companies will be interested. Lawson & Pharis have drilled most of the 21 wells completed in Natchitoches Parish during the past year in conducting an extensive structure study of that locality, which is on the north side of the Angelina-Caldwell flexure. Most of these tests have been shallow pools. About a year ago, however, a deep test in Natchitoches attracted considerable attention by reason of two gas blowouts of sizable proportions and a final showing of oil, but in the end the test was lost when salt water broke in and the hole was finally abandoned as junked.

Mississippi Activities

After being more than four months in the hole, the crew of the Amory Natural

(Continued on Page 114)

No Monkey-Business



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Humble Oil & Refining Co. Well Starts Flowing When Tools Are Run In to Clean It Out and Yield Increases

By B. D. Stevenson
Staff Correspondent, Southwest Texas Fields

SAN ANTONIO, Tex., Jan. 9.—The feature of the week in Southwest Texas is the Humble's No. 2 Flato, a 15-bbl. pumper for two years, and now flowing somewhere better than 1,000 bbls. of oil a day in addition to a lot of water. Depth is 2,928 feet. It sanded up and when tools were run in to clean it out it started off flowing 126 bbls. in 12 hours and has steadily increased. Humble is putting in a treating plant. As previously reported, it is supposed the packer gave way and it is thought the oil is coming from a 2,700-foot sand.

Humble has 80 acres immediately south of this on which the lease expires in two or three months and it is assumed the company will start drilling there soon. Gulf owns 40 acres west of the well. Humble owns most of the acreage around the well. There is a chance for a little play by independents, however. The well is the only one in the field completed and that produced at 2,928 feet. There have been showings had, however, frequently in wells in the 2,700-foot sand but attempts to complete wells in it have been met with failure heretofore.

There was a noticeable pickup in business the past week following the holiday lull and wells that were standing are now active. The Alworth-Stevens Hild No. 10 Garza in Jim Hogg County in the Alworth Pool, previously reported flowed 221 bbls. in 20 hours along with a lot of gas. The well came in over a week ago making mainly gas and spraying oil. The oil increased and gas decreased and it looked good. It gauged at one time 15 bbls. an hour. The last week at the end of 20 hours after it had flowed 221 bbls. the gas was increased and the well was closed in for fear it would go to gas. The well is the farthest south in the field.

To Get Line on Field

Up to the bringing in of this well the new Alworth Field was not looking like anything more than very small production. This well, the farthest south, uncovered something new and the company has made another location 600 feet south of the No. 10, the completion of which will give a better line on the future possibilities of the field. The company's acreage doesn't run very far south, only about a half mile, and hence some other lease holders are likely to get interested there. Alworth-Stevens-Hild's new location, the No. 11 Garza, is in Block 10, Survey 39, and is 310 feet from the northwest line of the block and 460 feet from the southwest line.

Outside of the Alworth well interest in the proven acreage in the Mirando country is slight. Johnson (American Well & Prospecting Co.) has gone back to the Randado Pool where he has production and made location for his No. 23 Palacious, the second to be drilled by him on his new program, the No. 22 having been reported last week.

One interesting feature in the Laredo territory is the announcement of the location for J. H. Winch's No. 1 A. E. Gates in Survey 70, located 1,470 feet from the south line and 1,170 feet from the west line. This is in the old Leaseholders Pool, north and east of the Carolina-Texas gas pool. The Leaseholders never really became a pool. Some oil was found there and it looked like a well about as big as any in the Mirando territory. They couldn't complete it for one reason or another and for the last three or four years one or more wells a year have been drilled there but have failed to make satisfactory wells. Winch is to make another attempt.

Edward St. Albans, who has gone back in the north end of the Henne, Winch & Fariss Pool and started new drilling, is down 800 feet of his first well.

Medina County

Southern Gas Utilities-Witherspoon Oil Co.'s No. 3 Redus, Adams gas field, Survey 92, at 1,012 feet, total depth, casing set at 892 feet, gauged 5,450,000 feet with 366 pounds rock pressure.

Witherspoon Oil Co.'s No. 6 Nixon, Survey 119, total depth 956 feet, gauged 750,000 feet due to hole being reduced to shut off surface gas and water.

Bee County

Nichols & White's No. 1 Hicks, Block 19, Hicks-Hall Survey, has been abandoned dry at 1,408 feet.

Duval County

Cole Petroleum Co.'s No. 38 Benavides, Cole gas field, Survey 10, Block 12, location only, has been abandoned.

Starr County

T. W. Foltz and others have abandoned location made for No. 1 well in Survey 301.

New Locations

Houston Oil Co.'s No. 3 S. Benavides, Carolina-Texas Field, Webb County, is rigging up to deepen from 3,014 feet.

J. H. Winch's No. 1 A. E. Gates, Leaseholders Pool, Webb County, Survey 70, is moving on.

Magnolia Petroleum Co.'s No 17-A Martinez, Henne, Winch & Fariss Field, Jim Hogg County, Survey 256, Block 14, is rigging up to deepen from 2,088 feet.

Alworth Stevens-Hild's No. 11 M. Garza, Alworth Field, Jim Hogg County, Survey 39, Block 10, is location 310 feet to northwest line and 460 feet to southwest lines and is 600 feet southwest of the No. 10.

Oren Estes and H. J. Moore's No. 1 C. N. Sledge, Hays County, is location 285 feet to northwest lines of farm and 310 feet to southwest corner of Herzog 10-acre tract and is 1 mile from Kyle. Derrick material is on the ground.

Ed Leach's No. 2 Collins, San Patricio County, Edwards McGloin Survey, SE Section 39, and a few miles northwest of Mathis, is ready to spud in.

Joseph Bruner's No. 1 Wilson, A. Foyd Survey, Caldwell County, is location 2,320 feet to east line and 200 feet to south line.

Alamo Drilling & Leasing Co.'s No. 1 Hunter, San Patricio County, White Point gas area, is location and expects to start within 30 days.

Cole Gas Field—Duval

Morgan-Humphreys' No. 1 Harper, Survey 323, located 150 feet to west line and 422 feet to NE cor. of Survey 319, has been spudded in. Houston Oil Co.'s (Humble) No. 1 Juan V. Cuellar, Share 1, located 3,300 feet to southeast lines and 2,324 feet to southeast is drilling at 1,935 feet. Houston Oil Co.'s (Sun) No. 3-C Benavides, corner of Blocks 77, 78, 127 and 128, has rig up. Cole Petroleum Co.'s No. 50-B Benavides, Survey 5, Block 7, located 611 feet to northwest lines and 625 feet to northeast lines, is drilling at 2,610 feet.

Humble-Reiter-Foster Pool

Humble Oil Refining Co.'s No. 7 Kohler, Survey 165, located 200 feet to north and west lines, has rig up.

Randado Field—Jim Hogg

Magnolia Petroleum Co.'s No. 32 Merchants State Bank, Survey 415, located 850 feet to west line and 2,100 feet to north lines, is drilling at 2,592 feet; No. 33 Merchants State Bank, Survey 415, is location 2,400 feet to west line and 1,690 feet to west line.

Piedras Pintas Dome

Humble Oil & Refining Co.'s No. 7 Walsh, Survey 185, located 2,050 feet to east line and 1,750 feet to north line, is drilling at 4,416 feet.

Henne, Winch & Fariss Field

Edwards St. Albans' No. 9 Lopez, Share 1, Block 6, located 291 feet to east line and 180 feet to south line, has been spudded in.

Reiser Field—Webb

Ritchison and others' No. 1 Wheatley, Survey 1,570, Block 2, is location. W. O. Wheatley's No. 2 Reiser, Survey 1,617, Block 8, located 150 feet to south and east lines, has been spudded in.

Carolina-Texas Field

Serna-Forrest's No. 1 Benavides, Survey 2,272, Block 2, located 150 feet to north line and 200 feet to east line, is drilling at 900 feet.

Cole Field No. 2

Cole Petroleum Co.'s No. 1 Benavides, Survey 412, Block 5, located 160 feet to north line and 150 feet to west line, has been spudded in.

Luling Field—Caldwell

Pat M. Armstrong's No. 1 Hardeman, Miles G. Dykes Survey, 150 feet to northwest and southwest lines, is drilling. North & South's No. 1 Kelly is drilling at 7,268 feet; No. 2 Tiller is drilling at 6,815 feet.

Kingsville Field—Kleberg

Humble Oil & Refining Co.'s No. 2 Flato, Section 40, Block 10, located 150 feet to north line and 500 feet to CEL, after sanding up, when cleaned out started flowing and is making 1,500 bbls. of oil daily; No. 4-A Dennett, Section 39, Block 1, located 550 feet to north line and 150 feet to west line, at 2,238-55 feet, is standing 600 feet in oil and looks like a 100-bbl. pumper. Houston Oil Co.'s No. 3 Kissman, Section 41, Block 10, located 500 feet to north and west lines, has derrick up.

Adams Gas Field—Medina

Southern Gas Utilities-Witherspoon Oil Co.'s No. 5 Adams is location 1,400 feet north of No. 4. Witherspoon Oil Co.'s No. 1 Tidal lease is location in the western part of the field. C. E. Lange and Jake Jarmon's No. 1 Adams, Survey 71, located 500 feet to north and west lines, is shut down at 60 feet.

Refugio Gas Field—Refugio

Coast Gas Co.'s No. 2 Shelly is drilling in gumbo at 2,415 feet. Houston Oil Co.'s No. 4 Rooke at 2,634 feet cored sand; No. 8 W. J. J. Heard is drilling at 3,216 feet in gumbo; No. 1 Smith Heard is rigging up to deepen; No. 11 Heard at 2,658 feet is waiting on cement. Houston Gulf Gas Co.'s No. 2 Ryals is rigging up; No. 1 Tom O'Connor is in gumbo at 810 feet; No. 1 Vance is in water sand at 2,623 feet; No. 5 Fanny Heard is in sand at 3,276 feet; No. 6 Fanny Heard is deepening from 2,405 feet; No. 4 Heard is drilling at 3,510 feet; No. 1 Smith Heard is standing at 2,510 feet.

White Point Gas Field—San Patricio

Houston Oil Co.'s No. 3 Humble is rigging up; No. 4 Humble is drilling at 2,306 feet; No. 5 Humble is location; No. 2 Ragsdale is in gumbo at 2,304 feet; No. 3 Ragsdale is location. Mission Drilling Co.'s No. 1 Mooris is drilling at 2,150 feet; No. 1 Hunter at 1,900 feet, approximate depth on test, showed 600 pounds rock pressure and dry gas, casing being set. Saxet Oil Co.'s No. 2 White Point Development Co. is drilling at 1,975 feet; No. 8 Rachal is drilling at 2,534 feet; No. 10 Rachal is standing at 400 feet; No. 1 Hunter is waiting on water.

DUVAL COUNTY WELL LOOKS BETTER THAN ANY OTHERS IN THAT FIELD

By B. D. Stevenson

SAN ANTONIO, Tex., Jan. 9.—Milo E. Trussell, trustee, and others' No. 1 Moody in the northwestern part of Duval County at 2,422 feet on a drill stem test had about 500 feet of oil below which was drilling fluid, oil, mud and sand and the water was slightly brackish. Wells drilled by the Schlessinger Oil Corp. on this acreage had some pretty good showings and looked at times like wells. The new well started setting casing last Thursday and may be able to test this week. It looks better than any of the others and had more oil.

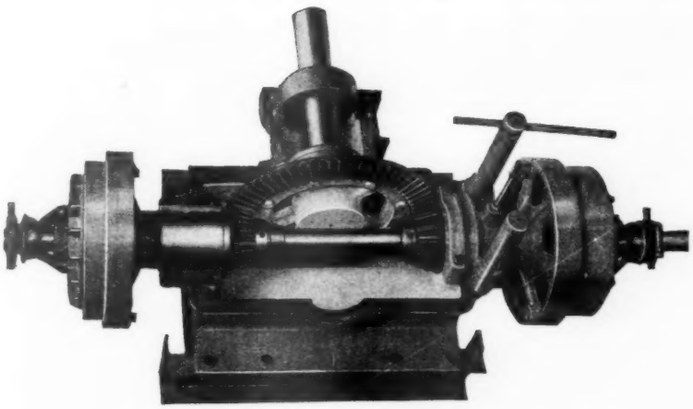
This location is up the Reynosa escarpment about 20 miles northeast of the Carolina-Texas gas field in Webb County. After penetrating a caprock the drill went into a gray sand and a core was taken. There was about a foot of the sand then a shale break of about a foot and below that about 4 feet or more of good looking oil sand. In the other wells drilled this foot of gray sand under the caprock was not detected. The sand below the shale break is the Henne, Winch & Fariss Pool sand of Jim Hogg County, producing at a depth of about 2,150 feet.

The casing in the Trussell No. 1 is being set on the caprock. The driller noticed that some of the returns were lost when the gray sand was penetrated. The brackish water may come from that sand. It is uncertain. If the first test does not show up as it should liner will be set in the shale and cut off the top sand and a second test made. The bottom sand looked especially good and the amount of oil being more than was had in the other tests it looks like a better chance to make a well.

Plans that have been in abeyence over the year-end are beginning to take form and certainty. J. E. Walsh has started a test in the SW cor. of Bexar County on Dixie acreage and geology and not far from where Marland drilled a year ago. Dickinson & Smith's No. 1 Callahan in Caldwell County at 1,790 feet was in Taylor Marl but expecting soon to find the chalk. If it does it will be high and the supposition will be has a chance to get production in the Edwards lime. A few days drilling will tell the tale. Karnes is starting to drill in Frio County and Pundt is testing his well in Zavala. Pundt has quite a little gas or did late last week at 1,311 feet. The well was showing a trace of oil. Late in the week he drilled in and was testing and reports from the well indicated it had a fair chance to make a gasser.

War. Wood Hunt's well in Live Oak County, northwest of the Cartwright gas field, was getting the formations a little hight as compared with the Clark well on the Adair farm on the east side of the Nueces River and last week was drilling at 1,400 feet and with only a few hundred feet more to drill to get to probable producing depth. At 1,152-62 feet it had a sand that while not promising looked too good to pass without a

(Continued on Page 113)



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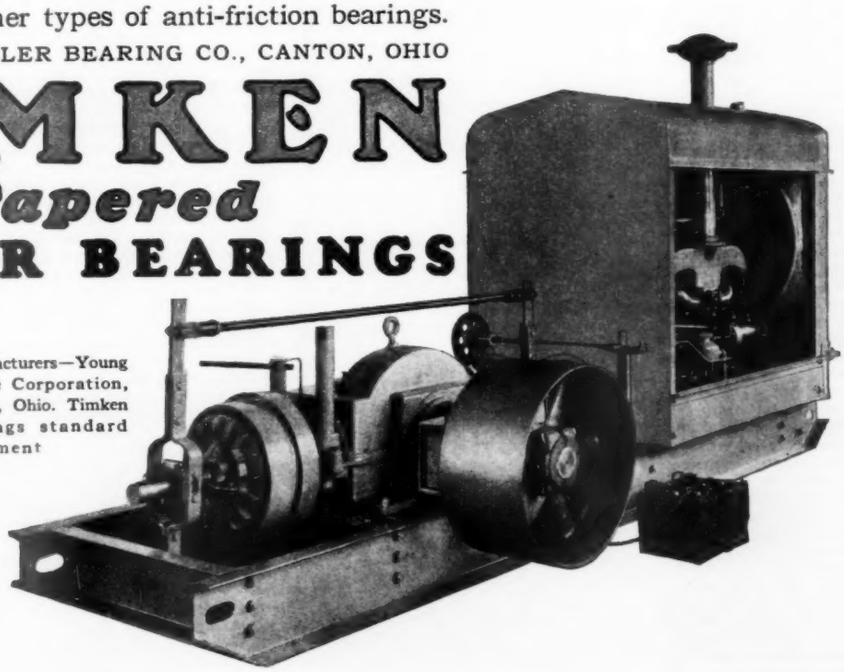

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Blue Ridge Well Features Gulf Coast

Completion Making 2,500 Bbls. 27 Gravity Oil From Sand 150 Feet Thick. Spindletop Shows Big Decline in Output

By Ne'l Williams
Staff Correspondent, Gulf Coast Fields

HOUSTON, Tex., Jan. 9.—One of the biggest wells on record at Blue Ridge, Fort Bend County, Texas, was brought in the past week when H. R. Cullen and associates' No. 1 Blakely started flowing at the rate of approximately 2,000 bbls. daily of pipe line oil. Production later increased to around 2,500 bbls., according to a statement from the office of Mr. Cullen. The oil tests 27 gravity, and is from a sand at a total depth of 3,873 feet. The well takes in 150 feet of sand, an unusual thickness.

The Cullen producer featured Texas and Louisiana coastal operations during the week, although it was not the largest producer. The latter was Yount Lee Oil Co.'s No. 50 McFadden at Spindletop, Jefferson County, which came in flowing at the rate of 3,500 bbls. daily. This is producing from the 4,000-foot level.

Coastal developments continued routine and generally of little significance, this being reflected particularly in production figures which showed a decline in the daily average output for the week of 7,734 bbls. The total daily average production was 126,315 bbls., the lowest mark touched in many months.

Blue Ridge and Lost Lake

Some new activity is being shown at Blue Ridge following the completion of the Cullen well and the Cullen interests have locations and are building derricks for three new tests. The past week also witnessed the beginning of an extensive drilling campaign at Lost Lake in Chambers County.

Lost Lake is one of the latest prospective salt domes located in the coastal territory. It was worked out and is owned entirely by the Pure Oil Co. This company has been drilling one test, in which it is down 2,625 feet, but now derricks and rigs are going in for five additional tests. Operations at Lost Lake are handicapped due to the marshes, the field being submerged.

In coastal Louisiana the center of interest is at the East Hackberry Dome, Cameron Parish, where the Calcasieu Oil Co. brought in the 1,000-bbl. discovery well early in November. Calcasieu Oil Co.'s No. 1 Olevia, which was started after the completion of the No. 2 Caldwell, the discovery well, was drilling around 3,960 feet as the week closed. The producing sand in the discovery well was topped at 3,971 feet, the well being 22 feet in the sand.

The Calcasieu Oil Co. is operating jointly with Magnolia Petroleum Co. and the Union Sulphur Co. and is drilling another test and has a derrick up for another. The above companies own approximately 2,500 acres at East Hackberry and for this reason there will be no extensive development of the dome, although two other operators, C. O. Noble and associates and Yount Lee Oil Co., have drilling tests in that district.

The Lockport Field of Calcasieu Parish, just north of Cameron Parish, added another well during the week in Vacuum Oil Co.-Gulf Refining Co.'s No. 19 Miller, which made a small producer at 3,237 feet. It is flowing approximately 150 bbls. net oil daily.

Testing for Salt Domes

With few exceptions development of prospective salt domes is being done slowly although all larger companies are actively continuing geophysical work all over the coastal territory in an effort to locate additional dome possibilities. Considerable interest has just been focussed on a territory just southeast of Houston at Alameda where a new dome was thought to have been located by geophysical work. Some leasing was done in this district, but at present this has quieted.

Another dome also was thought to have been located in Brazoria County, but that district now is quiet. Four other domes are being prospected in Brazoria County, Allen and Clemens Domes, by the Roxana Petroleum Corp., Stratton Ridge by Gulf Production Co. and West Columbia by Humble Oil & Refining Co.

With exceptions mentioned completions in the coastal territory during the week were small producers, mostly pumpers of workover wells in old fields. Gulf Production Co. abandoned as dry a deep test at Spindletop, its No. 12-A Weed. A number of scattered wildcats also were abandoned, although most of them have been shut down for months.

The decrease in production again was due largely to Spindletop, whose daily average output the past week was only 47,097 bbls. The majority of other fields showed slight drops. Production in southwest Texas fields decreased, but a gain of 1,715 bbls. was indicated in central Texas.

Production by Fields

Daily average production by fields for the week ending January 7 was:

Coastal	
Spindletop	47,097
Saratoga	1,078
Batson	1,424
Goose Creek	6,963
Sour Lake	3,724
Hull	11,865
Big Creek	2,040
Columbia	9,099
Humble	3,731
Pierce Junction	10,014
Blue Ridge	3,725
Markham	200
Orange	4,114
Damon Mound	825
South Dayton	239
South Liberty	1,935
High Island	18
Moores Field	41
Boling	1,997
Nash Dome	1,250
Barbers Hill	600
Vinton	4,018
Starks	380
Edgerly	2,258
Evangeline	1,101
Lockport	5,336
Sweet Lake	383
Sulphur	0
Hackberry	759
Total this week	126,315
Total last week	134,049
Decrease	7,734
Southwest Texas	
Somerset	2,244
Lytton Springs	1,498
Dale	438
Luling	14,780
Miscellaneous	8,210
Total this week	27,170
Total last week	27,421
Decrease	251
Central Texas	
Mexia	8,384
Cedar Creek	1,030
Nigger Creek	1,195
Currie	543
Wortham	2,260
Richland	629
Powell	12 873
Total this week	28,864
Total last week	27,149
Increase	1,715

Austin County

Humble Oil & Refining Co.'s No. 1 Stravoski at Raccoon Bend, Austin County, is drilling hard sand at 1,023 feet. This company's No. 2 Gotosky, same field, is in sandy shale at 2,612 feet. Weedock and associates' No. 1 Ward, also in Austin County, is drilling around 250 feet.

Brazoria County

At Stratton Ridge, Gulf Production Co.'s No. 3 Perry is drilling at 4,354 feet. Humble Oil & Refining Co.'s No. 4 Coon at West Columbia still is fishing liner preparatory to deepening.

On Allen Dome in Brazoria County, Roxana Petroleum Corp.'s No. 4 Allen is sidetracking at 4,800 feet in shale and lime. At present heavier mud is being mixed in expectation of encountering gas around this level. No. 1 Random on the same dome is milling out the lower back pressure valve. Its depth is 4,462 feet. Roxana still is working on its No. 1 Allen Bernard, which has been flowing by heads. Saturday 90 feet of water was bailed from the hole and the well flowed 29 bbls.

Roxana Petroleum Corp.'s No. 2 Bell at Clemens Dome, also in Brazoria County, is drilling at 5,276 feet in hard shale and lime.

Starks and associates' No. 3 Hinck'e, Brazoria County, which has been standing since early in November, has resumed drilling and is down around 1,800 feet.

Chambers County

At Barbers Hills, Chambers County, R. L. Bartlett has started operations at No. 1 Fisher and is drilling around 550 feet. Bennett Petroleum Co. also has started drilling deeper in its No. 8 fee, drilling at 3,800 feet. This well was originally completed in August, 1927, flowing 200 bbls. daily at 3,356 feet.

Gulf Production Co.'s No. 2 Smith at High Island is drilling at 4,008 feet. McLean Oil Co.'s No. 10 Cade is drilling at 4,030 feet. This company's No. 11 Cade is down 3,375 feet, where liner is being set for a test of the formation. McLean's No. 6-C Cade is drilling at 2,000 feet.

At Lost Lake, Pure Oil Co., the sole operator and owner, is preparing for an active drilling campaign. It is getting derricks and rigs up for five tests in addition to its No. 1 Lost River, which has been drilling since early November and now is down 2,625 feet. The additional tests are No. 1 Trinity River, No. 1 Old River Lake, No. 1 Old River, No. 1 Lost Lake, and No. 1 State in Cut-off Bayou.

Colorado County

Rich Oil Corp. is drilling around 550 feet in its No. 1 Von Rosenburg fee. Other operations in this county are unchanged.

Fort Bend County

At Blue Ridge, H. R. Cullen and associates have completed No. 1 Blakely, flowing 2,000 bbls. daily of 27 gravity oil from sand at 3,873 feet. Following the completion, these operations are building derricks for three additional tests at Blue Ridge. These will be No. 1 Lafferty, No. 1 Luscher and No. 1 Davidson. Cunningham Production Co. also has a derrick up for No. 1 Blakely at Blue Ridge, and Gordon & Sharp have a location for No. 2 Blakely. H. B. Gordon, trustee, is drilling at 800 feet in No. 2 Blakely. Gulf Production Co.'s No. 11 West Schenck, an old well drilling deeper, is down 3,967 feet. The same company's No. 13 West Schenck, a new test, is drilling at 3,822 feet. Navarro Oil Co.'s No. 4-A Robinson is drilling at 2,075 feet. Sam Watts and associates' No. 2 Blakely is drilling at 850 feet. Navarro Oil Co. has a location for No. 4-B Robinson and is to deepen No. 1-A Robinson.

At Moore's Field (Orchard), Gulf Production Co. is drilling at 3,665 feet in No. 14 Moore.

Gulf Production Co.'s No. 44 Davis at Big Creek is drilling at 3,980 feet. This company's No. 34 Davis, an o'd well deepening, is drilling at 2,986 feet. The Texas Company's No. 3 Wheat is drilling below 3,000 feet.

At Long Point, Gulf Production Co.'s No. 2-A Beard is drilling at 4,204 feet. The same company's No. 6 Trone is down 838 feet, and its No. 7 Woolf at 658 feet.

On the new DeWalt Dome, also in Fort Bend County, Humble Oil & Refining Co. has spudded in its No. 1 Sugar Land Industries, Inc., after a delay caused by frozen water lines. The test is down 90 feet.

Rycade Oil Corp.'s No. 18 Wisdom at Nash Dome is to be deepened as soon as the screen can be cut out. This test tested salt water at 3,998 feet. Rycade lost the bailer in No. 20 Wisdom and is fishing at 3,974 feet. This company's No. 21 Wisdom is drilling at 3,663 feet, while No. 22 Wisdom is being rigged up.

On the Fort Bend side of the Boline Dome, Sun Oil Co. has rigged up for two more tests, the No. 4 H. R. Farmer and the No. 5 J. R. Farmer.

Hardin County

At Batson, Capitol Oil Co. has completed No. 9 Hodges, pumping 250 bbls. from sand around 3,900 feet. Deutzer Oil Co. is setting casing at 1,150 feet in No. 1 Colorado-Batson Syndicate. Total depth of the hole is 1,460 feet.

Gulf Production Co.'s No. 13 Tabor at Saratoga is drilling at 1,714 feet. Rio Bravo Oil Co.'s No. 104 "D" has been shut down at 2,030 feet. Sun Oil Co. is setting strainer in No. 137 M. & M. to test a formation around 2,130 feet.

Gulf Production Co.'s No. 3 Thomson, Sour Lake, is drilling at 1,631 feet. Lake Graham Oil Co.'s No. 16 Bashara has been placed on the pump, making 70 bbls. from sand at 2,110 feet. Orange Petroleum Co.'s No. 4 Merchant is drilling salt at 4,850 feet. Hill & McDowell's No. 95 Millhome tested salt water around 1,250 feet. Theis Oil Co.'s No. 5 Merchant, an old well deepened, has been completed flowing 140 bbls. from sand at 2,350 feet.

Harris County

At Pierce Junction, Anderson & Plummer's No. 2 Whitehead is drilling at 3,150 feet. Cullen and associates' No. 4 Howe is drilling at 3,895 feet. Sun Oil Co.'s No. 1 Fitzsimmons made a 50-bbl. well from a formation around 4,600 feet. Gulf Production Co.'s No. 1 Perry is drilling at 5,330 feet, its No. 22 Taylor at 4,762 feet and its No. 23 Taylor at 3,774 feet. Hutex Oil Co.'s No. 1 Traper is drilling at 2,825 feet. Leonard and associates' No. 1 Settegast is drilling below 1,450 feet. Moody Corp.'s No. 3 Hume (Reid) is drilling at 2,275 feet, its No. 2 Whitehead at 1,200 feet and its No. 1 Cooper at 1,250 feet. Navarro Oil Co. is fishing at 3,240 feet in No. 2-B Cain. Rio Bravo Oil Co. is drilling at 2,250 feet in its No. 7-B Settegast. Shaw and associates are rigging up for No. 2 Fitzsimmons.

At Goose Creek, Gulf Production Co. is drilling at 2,803 feet in No. 18 Hoffman-Gaillard. This company's No. 21-A Wright is drilling at 3,035 feet. Humble Oil & Refining Co.'s No. 2 Warren is coring hard sand at 3,754 feet. The latter company's No. 73 Simms-Smith cored a gas sand at 4,269-74 feet, which was passed out of into a sand and shale formation. No. 4 Ashbel Smith has encountered a sand showing oil at 2,868-72 feet. Port City Oil Co.'s No. 1 Grace Addey is drilling below 2,075 feet.

Jefferson County

At Spindletop, Yount Lee Oil Co. has completed No. 50 McFadden flowing 3,500 bbls. daily from the 4,000-foot level. Its No. 49 McFadden, not previously reported, was completed two weeks ago flowing 1,000 bbls. from sand at 2,895 feet. Gulf Production Co.'s No. 12-A Weed, at Spindletop, has been abandoned as dry at 5,177 feet.

Gulf's No. 10-A Marrs McLean is drilling at 5,852 feet, its No. 7 Jack & Duff at 4,540 feet, its No. 8 Jack & Duff at 1,909 feet, its No. 17 Marrs McLean at 4,725 feet, No. 18 Marrs McLean at 4,-

(Continued on Page 118)

WITH FACES TURNED TO THE NEW YEAR

1928 has dawned. You have waited expectantly—what does it hold?—Profit and ease?—work and loss?—not altogether matters of fate.

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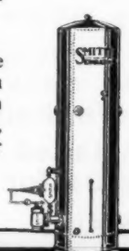

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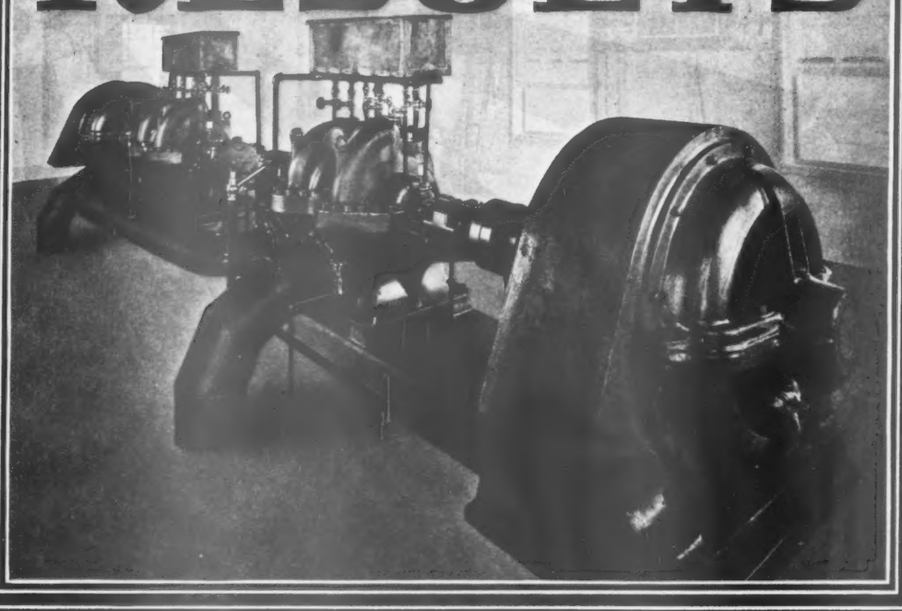

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Oregon Basin Well Causes Excitement

Cody Petroleum Co. Test Has 1,000 Feet of Oil in Hole, but Widely Circulated Reports of Big Gusher Unfounded

By Tolbert R. Ingram
Staff Correspondent, Rocky Mountain Area

DENVER, Colo., Jan. 9.—Reports of another big well in the Oregon Basin Field in Park County, Wyoming, caused a flutter among the oil men as interest in this operation is keyed to a high tension. The Cody Petroleum Co.'s No. 1 Ferdig, half a mile west of the Ohio Oil Co.'s discovery well, No. 3 Sonners, reached the top of the Embar and oil rose 1,000 feet in the hole. Drilling was suspended to run casing. Widespread reports of a 5,000 to 25,000-bbl. well are premature.

Teapot Dome went back to the Navy Department on the first of the year when the decree in the Mammoth Oil Co. litigation was signed in the Federal District Court in Cheyenne. The running of oil ceased about the middle of November and work of plugging the wells was commenced. All the wells, 62 in number, were ready to be shut in on January 1, and the much-discussed dome ceased to be an operating factor. In the hearing on the decree, the court denied the application of the Sinclair interests for the return of quit-claim deeds to the Belgo claims on this structure for which Sinclair is said to have paid $1,000,000, after which he deeded them back to the Government. The Government had never recognized the validity of these claims. The field was producing 800 bbls. daily when operations ceased. The Government is expected to take steps to recover, if possible, part of the production or close down wells on leases outside of but adjoining the reserve.

Midwest Refining Co. interests have further extended their marketing facilities in the Rocky Mountain region by acquiring the retail distribution system of the Arro Oil & Refining Co. in Montana consisting of 45 filling stations and 3 warehouses. The company's production and refinery were not included in the deal.

Drilling operations in Wyoming outside of Oregon Basin and the older fields continue to be curtailed for the winter. In the LaBarge district most all of the wells now are shut down.

In Colorado, the Texas Production Co.'s No. 10 Knowlton on the Moffat Dome, pumped 85 bbls. in 12 hours from the Sundance at 4,400-27 feet, definitely proving another horizon on the structure. In the meantime this well is flowing 100 bbls. a day from the Morrison, a horizon below the Dakota and above the Sundance. Midwest Refining Co. has made five new locations on the Iles Dome offsetting Texas Production Co. wells. This company's No. 4-SD Shaw on the Iles Dome was completed at 3,276 feet, making 255 bb'ls. in the first 24 hours through a quarter-inch choke with 560 pounds back pressure. Reiter-Foster Oil Co.'s No. 1 State on the Hiawatha Dome is reported in a water sand, and the Texas Production Co. has a producer on Tow Creek in its No. 1 Rule.

In New Mexico, the Texas Production Co.'s No. 2 Robinson in Eddy County, swabbed 220 bbls. in 24 hours. It will be deepened and completed and the rig moved back to No. 1 to deepen that well to the lower horizon encountered in No. 2.

Utah operations were of a routine nature with no developments of importance reported from any of the wells.

Wyoming

The Cody Petroleum Co.'s No. 1 Ferdig, NE SE NE, Section 7-51-100, on the Oregon Basin structure in Park County, north central Wyoming, topped the Embar sand at 3,553 feet, and the hole commenced filling with oil. Operations were suspended to prepare for drilling in. A long distance telephone message from the field Thursday night said the oil was standing 1,000 feet in the hole, and Friday morning the hole was reported still filling up.

The well is approximate'y half a mile west of the Ohio Oil Co.'s No. 3 Sonners, NW NE, Section 8-51-100, the discovery well in the Embar-Tensleep series which came in last spring. Previous to that time the structure had shown large quantities of gas in the Frontier and Dakota sands in several wells, but the Sonners well was the first to reach the lower horizons in the Pennsylvanian. The oil is of a heavy grade. The Sonners well topped the Embar at 3,350 feet last March and the hole stood full of oil. It flowed a little when the tools were pulled and was estimated at that time at 600 to 700 bbls. It was then drilled to 3,500 feet, 50 to 100 feet above the Tensleep, and was estimated at 700 to 1,000 bbls. It was then drilled, supposedly to the top of the Tensleep at 3,580 feet and shut down.

What the well actually will make is not positively known. The best indication was in a test made for representatives of the United States Bureau of Mines in which it filled a 250-bbl. tank in 13 minutes. The geological survey estimated it, on the basis of this test, at 21,000 bbls. The well is said to have been gauged by the Illinois Pipe Line Co. and to have made 3,500 bbls. in 24 hours. In any event, it is considered a big well and the Ohio constructed a 55,000-bbl. tank in the field. The Illinois Pipe Line Co. laid an 8-inch line from the well to loading rocks at Cody and put up two 80,000-bbl. tanks. This gathering and transportation system has been completed for several months ready to commence the movement of oil whenever the Ohio decided to produce the well.

Most Active in Wyoming

The Oregon Basin operation in Park County is the most active district in Wyoming and progress made on some of the wells point to one or more completion within the next month. Two wells near the objective Embar-Tensleep series are Charles E. Orchard's No. 1 Rue, SW SW, Section 28-51-10, which is drilling below 2,580 feet, and the Ohio Oil Co.'s No. 1 Batson, Section 6-50-100, drilling at 2,380 feet. Both of these wells are on the south dome which has never been tested to the horizon in which the Ohio Oil Co.'s No. 3 Sonners found the pay on the north structure. The south dome is a larger structure than the one to the north and conditions are very similar. The Enalpac Oil & Gas Co. had gas in some old wells in the upper horizons the same as found farther north, but none of these wells went below the Dakota.

The Ohio Oil Co. must think well of the area since it is reported to have expended $2,000,000 to secure the Enalpac holdings on top of the south dome. It is understood the Orchard well has shown considerable gas in the Frontier and Dakota horizons, and that it is now close to if not in the top of the red beds. The gas pressure is being held back by the mud used in drilling, this operation using a Hild drive rotary. The Ohio's Baston well is using a Halliburton drive rotary.

On the north dome, the Ohio Oil Co.'s No. 4 Sonners, Section 8-51-100, is erecting rotary to deepen an old well bottomed at 2,260 feet. This is on the same permit as the discovery well. Cody Petroleum Co.'s No. 1 Klindt, SE SE, Section 7-51-100, is underreaming to bottom of hole at 2,865 feet. The Linco Oil Co.'s No. 1 Rosseau, NW Section 33-51-100, is drilling at 2,100 feet. The Ferdig-Wyoming Oil Co.'s No. 2 Hough, SE Section 19-51-100, is underreaming to bottom of hole at 2,402 feet. The Ostland Development Corp.'s No. 1 Rousch, Section 9-51-100, is underreaming to lower the 8¼-inch to bottom at 2,086 feet. Same company's No. 1 Shaw, Section 18-51-100, is fishing for tools at 600 feet. Continental Oil Co.'s No. 1-A State, Section 16-51-101, is drilling at 1,610 feet. Producers & Refiner's No. 1 Frisby, Section 32-52-100, is drilling in brown shale at 642 feet. Baston & Dow have a rig up for No. 1 Welch, Section 10-50-100. Other operations show no change from last week. The Ostland Development Corp. is a new concern organized to take over the operations heretofore carried under the name of Fred G. Ostland, Inc.

No Completions Reported

Wyoming reported no completions for the week. Drilling has slowed up and the number of wells shutting down for the winter continues to increase. In the LaBarge district in Sublet County, the A. H. Squires, W. D. Newlon, Associated Producers, Joe Minturn on Section 9, the Texas Production Co., the Akin Butte Co., and the Wolff Petroleum Co. wells are all shut down, most of them for the winter. The Reece Oil Co.'s No. 2 was shut down at 1,324 feet in red sha'e. It had an oil sand at 1,248-58 feet which made 1 bbl. of oil and 5 bbls. of water per hour. M. J. Goldberg's deep test, Section 16-27-113, is among the wells shut down for the winter. The California Petroleum Co.'s No. 4-K will shut down as soon as it is rigged, and same company's only drilling operation is its No. 25-F, drilling at 450 feet. Joe Minturn's No. 1 on Section 4-27-113, is continuing and is underreaming the 10-inch at 820 feet. It is not expected that there will be much activity in this district until spring and by that time the plans for building a pipe line to Opal will be under way. Midwest engineers are now making surveys.

The Utah Oil Refining Co.'s No. 7-A Hughes, Section 2-26-90, in the Lost Soldier district in Sweetwater County, topped the Sundance at 2,525 feet and pumped 100 bbls. of clear water, a color of oil showing on the water. It is probable that it will be plugged back and an effort made to produce it in the Dakota.

The Continental Oil Co.'s No. 1 Schuricht, NW. Section 5-35-65, in the Lance Creek Field, is being equipped for pumping from a sand in the Dakota at around 2,900 feet. There was not sufficient gas with the oil to make it flow.

Colorado

A pumping test on the Texas Production Co.'s No. 10 Knowlton, Section 33-5n-91, on the Moffat Dome in northwestern Colorado, cleared up doubts this week as to what might be expected from the Sundance sand in this well. This is the only test drilled to the Sundance on the Moffat Dome and it will be recalled that this well had water in the Dakota, followed by oil in the underlying Morrison, and a show of oil with water in the Sundance, the next horizon below the Morrison. A swabbing test exhausted the water without lowering the oil to any extent. It was decided to run rods and tubing and put the well on production for a time to see what would happen. In the first 10 hours it pumped 85 bbls. from the Sundance at 4,400-27 feet, or at the rate of 200 bbls. a day. At the same time the Morrison sand was flowing 100 bb'ls. per day between casings. It is not unlikely that continuous pumping will increase the output as the sand was extremely tight and hard and when channels are opened up for the oil to come into the hole, it is expected to make a better showing. The results in this well are encouraging and are expected to stimulate wildcatting in that area the coming spring.

It is reported that The Texas Company will start two new wells to the Sundance at an early date, and while no locations have been announced, the reports are considered reliable as the company is in need of additional crude for its Craig and Casper refineries. The Moffat Dome lies in the next township to the northeast of the Iles Dome and the two structures are believed to be connected by a saddle similar to the saddle between the Salt Creek and Teapot Domes in Wyoming, but no tests have been drilled between the two structures and the facts remain to be determined. The Moffat Dome is about 750 feet lower than the Iles Dome, based on sea level datum.

Iles Dome Activity Increasing

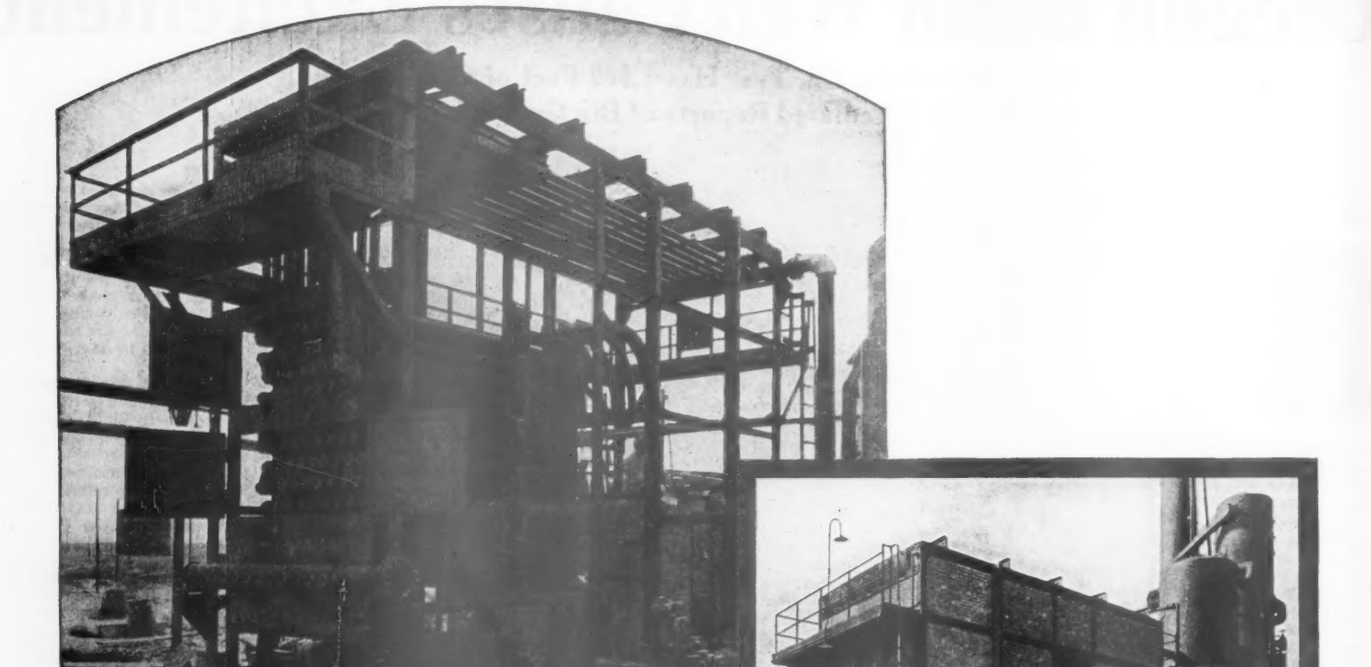
Activity on the Iles Dome is increasing steadily. The Midwest Refining Co. announced four new locations this week. These are as follows: No. 1 SD Parkinson, NE Section 22-4n-92, 220 feet from the north line and 220 feet from the east line; No. 12-SD Parkinson, NE Section 22-4-92, 660 feet from the north line and 220 feet from the east line; No. 18-SD Parkinson, NE Section 22-4-92, 1,100 feet from the north line and 220 feet from the west line; No. 19-SD Parkinson, NE Section 22-4-92, 1,100 feet from the south line and 220 feet from the west line; and No. 24-SD Parkinson, NW Section 22-4-92, 1,100 feet from the south line and 220 feet from the east line. These are all offsets to wells being drilled by the Texas Production Co., and are in addition to three new wells announced two weeks ago.

The Midwest Refining Co.'s No. 4-SD Shaw, NE NW NE, Section 27-4-92, was reported a completion this week at a total depth of 3,276 feet. The production is coming from the Morrison. It flowed 1,400 bbls. with the valve wide open before it was completed. When put on regular production it was beaned down to a one-quarter-inch choke and flowed 255 bbls. in the first 24 hours with a back pressure of 560 pounds. The flow increased in the next 24 hours to 450 bbls. and the pressure increased to 600 pounds. This makes it almost as good a well as the discovery which produced 2,600 bbls initial from the Sundance sand. No. 4-SD Shaw was not drilled to the Sundance. The Midwest's No. 34-SD Parkinson, SE SW, Section 22-4-92, which made 11,000,000 feet of dry gas from the Morrison at 3,070 feet, is drilling in hard dry sand at 3,114 feet.

Shaffer Oil & Refining Co.'s No. 205 Yarg, joint with the Yarg Producing & Refining Co., NW NW, Section 26-4-92, is running the 10-inch and will cement it at 3,005 feet to shut off the Frontier topped at 2,923 feet. The Alliance Oil Co.'s No. 1 Milliken, SW cor., Section 14-4-92, has commenced spudding. This well has heretofore being carried under the name of L. L. Keith, who was in charge prior to the organization of the company, and will continue in that capacity. Denver and Alliance, Neb., men are back of the operation.

Discouraging Reports Received

Discouraging reports were received this week from the Reiter-Foster Oil Co.'s



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No. 1 State, SE cor., Section 16-12n-100, on the Hiawatha Dome, in Moffat County. This well, which is three-fourths of a mile west and a little north of No. 1 Wilson, the discovery well, which gauged 57,000,000 feet of gas when shut in in 1926 at a total depth of 2,035 feet, was reported cemented at 2,200 feet on top of the gas sand. News this week is to the effect that when the State well drilled into the sand water was encountered. The horizon is supposed to be a sand in the Wasatch. Unconfirmed reports are that the sand was drilled through and proved to be 40 feet thick. It is understood that the operation has been shut down for the winter and that in the spring the hole will be deepened. The results in this well were somewhat of a surprise and means that additional study will be required to determine the cause of the failure if it is really in the sand in which the Wilson well encountered gas.

The Continental Oil Co.'s No. 1 Hoye, SW NE, Section 34-9n-78, South McCallum Dome, in Jackson County, is drilling ahead at 4,540 feet and has not yet picked up the Muddy sand. Control head was installed last week in expectation of reaching the sand at any moment, but since this is the pioneer well at this depth, there is nothing but the surface geology to guide the drillers and the beds may be thicker than expected as proved to be true on the North McCallum structure where the Muddy was picked up at 5,110 feet. The discovery well on the north dome, No. 1 Sherman, NW NW, Section 12-9n-79, at last reports was making around 150 bbls. of oil and 30,000,000 feet of carbon dioxide gas, the mixture at the surface testing 110 degrees below zero. The Continental's two drilling wells on the north structure, are still several hundred feet off the objective, No. 1 Pollock, SE SE, Section 2-9-79, fishing at 4,480 feet, and No. 1 Peterson, SW SW, Section 1-9-79, drilling at 4,190 feet.

The Platte Valley Petroleum Co.'s No. 1 Patterson, Section 24-6n-61, on the Greasewood Dome, in Weld County, has resumed drilling at 3,640 feet after being idle for several weeks. Frank Kirchoff, of Denver, has been elected president of the company and some new financing is reported. The test is headed for the Dakota. At 3,200-85 feet it had a show of gas and oil along with salt water.

The Northeastern Colorado Oil Co.'s No. 1 State, Section 36-8n-55, on the Willard Dome in Logan County, is reported bottomed at 5,534 feet and to be shut down to repair cable.

The Parker Club's No. 1 Adams, Section 32-34-56, near Branson in Las Animas County, is making better progress at 3,820 feet, the formation showing a change to grayish brown lime and sand which makes drilling much easier. The hole is bottomed in the Pennsylvanian and some definite results may be expected at an early date.

Gasser in Carlisle Shale

The Mountain States Gasoline Corp.'s No. 4 Sandoval, NW NE, Section 9-34s-62, Garcia Dome, Las Animas County, has been completed as a gas well in the Carlisle shale at 1,825 feet. These wells make from 50,000 up to more than double that quantity of gas which is treated in a Campbell process absorption plant. A recovery of more than 4 gallons of gasoline per 1,000 feet of gas is obtained. No. 4 Sandoval appears to be making a richer gas than the other wells though not in any larger quantity. The company has completed a 2-inch, 5-mile line from the plant to the railroad and is selling its product to the Continental Oil Co., which blends it with other grades at its Florence refinery. Location will be made for No. 5 Sandoval probably on the SE NW, Section 4-34-62, and this will be a test to the Morrison sand expected at 2,400 to 2,600 feet.

The Texas Production Co.'s No. 1 Wilbur Rule, SW NE, Section 5-6n-86, Tow Creek Dome, was drilled to 4,300 feet from which depth it swabbed 47 bbls. in 12 hours from the shale. It will be completed at this depth and put on the pump. It is a quarter of a mile southeast of No. 1 Irwin Carstarphen which swabbed 369 bbls. initial from a total depth of 3,285 feet. No. 1 McNeill, half a mile south of No. 1 Irwin-Carstarphen, was abandoned last summer at 3,000 feet. This group of wells lie to the north of the principal producing area, and while on the same structure, the oil is of different grades, indicating that a fault may separate the two areas. No. 1 Wilbur Rule was a failure at the horizon in which No. 1 Irwin-Carstarphen encountered the pay. No test to the Dakota has been drilled in the area of these wells, though the Dakota yielded water in sand tests in the southern part of the pool.

The Continental Oil Co.'s No. 2 M. E. Hall, NW NE, Section 2-19s-70, in the west extension of the Florence Pool in Fremont County, encountered the pay at 957 feet, but has not yet been tested. Same company's No. 2 B. Steinmier (No. 584) SE SW, Section 35-18-70, which was completed at 1,350 feet last April with an initial production of 115 bbls., subequently increasing to 200 bbls., is being deepened and is drilling at 2,380 feet. No. 1 Lucas, SW SE, Section 3-19-70, is rigging up.

New Mexico

The Texas Production Co.'s No. 2 Robinson, NW cor. SW, Section 25-16-31, in the Maljamar area of Eddy County, gives evidence of being a more important strike than at first indicated. After being given a swabbing test from sand at 3,990-4,010 feet, in which it made 220 bbls. in 24 hours, drilling was resumed and it is now bottomed at 4,020 feet. It is probable that it will be completed at around 4,050 feet. The well as it stands appears to be the best well completed in southeastern New Mexico outside of the Artesia Pool. The importance of the showing is enhanced by the belief of officials that the production is coming from a horizon approximately 150 feet below the horizon in which oil and gas were encountered in No. 1 Robinson, NE SW, Section 25-16-31, less than half a mile to the east, and that also it is lower structurally than the other well. This makes the prospects for increased production in No. 1 Robinson much brighter should it be drilled deeper to the new horizon. No. 1 Robinson came in several months ago making 8,000,000 feet of gas and 5½ bbls. of oil from a total depth of 3,885 feet. It was temporarily completed at that depth with the tools lodged in the hole. No. 2 Robinson looked rather discouraging when it failed to find production at the horizon at which it was encountered in the other well. The plans at present are to go back into No. 1 Robinson as soon as No. 2 Robinson is completed, try to recover the tools and drill down to the streak encountered in the other well.

The Pueblo Oil Co.'s No. 1 Gessert, NW Section 1-17-31, near the Robinson wells, is still shut down at 3,705 feet waiting for pipe. Getty Oil, Inc.'s No. 1 Nicholas, NW NW, Section 25-20-69, a little more than a mile to the south of its No. 1 Hinkle, which was shut down after being given a two-days' test, is rigging up. It is reported that this company is negotiating a deal with the Ohio Oil Co. whereby some of the acreage in the vicinity of the well will be turned to that company, the purpose evidently being to interest the Ohio company in the area in order to hasten construction of pipe line facilities. The only other active operations in Eddy County the past week were R. D. Compton's No. 4 Mann, Section 4-18-27, drilling below 1,565 feet; Hamilton Petro'eum Co.'s No. 1 Billings, Section 12-19-26, drilling below 1,550 feet; and Levers & Carpers' No. 5 State, Section 3-18-28, drilling below 2,560 feet. Wooley and others' No. 1 McIntyre, Section 21-17-30, between the Artesia and Maljamar Pools, will not be drilled deeper. Rig will be moved to West Texas where the same interests will put down a well. The McIntyre well came in as a gasser with a flow of about 1,000,000 feet. The rig was destroyed by fire several months ago since which time it has been idle except for the erection of the present rig with the intentions of drilling deeper. It is understood that plans to drill another well 2 miles south of the McIntyre well have been abandoned, at least for the present.

Shots Believed Ineffectual

In Lea County, Henderson, Dexter & Blair's No. 1 Wyatt, SW cor., Section 34-17-33, which showed 1,200 feet of salt water in the hole after being shot at 4,988-98 feet, was plugged back to 4,850 feet and given another shot at 4,819 feet, and then shot again at 4,700-50 feet. Results are not yet known, but it is not beliebed that it can be made into a producer and that it probably will be abandoned. The Inglefield & Bridges' No. 1 State, SE cor., Section 4-17-34, was shot with 160 quarts at 4,675-4,745 feet. The hole bridged at 3,250 feet and is being cleaned out. Midwest Refining Co.'s No. 1 State, NE NE, Section 9-19-38, in Hobbs area, is drilling in sandy shale at 1,425 feet. Cecil Bordages' No. 1 Hughes, Section 27-19-38, is drilling again at 710 feet. It was thought that when the recent shut down took place that this well would await the outcome of the Midwest's test, but this does not appear now to be the intentions. Maljamar Oil & Gas Co.'s No. 2 Beardsley, SE NE, Section 15-17-32, is drilling below 4,015 feet.

The Clovis Oil & Gas Co.'s No. 1 Hoskins, NE Section 21-3-36, in Curry County, is drilling in brown lime at 3,775 feet. The 6⅝-inch casing was set at 3,702 feet and at 3,750 feet water was encountered, filling the hole. It is doubtful if this well will be drilled much deeper.

The Ohio Oil Co.'s No. 1 Sam Wells, SE Section 24-7-29, in the Jordan Ridge district in Quay County, is drilling at 4,800 feet. The company expects to carry the hole down to 5,000 feet.

In the northwestern area, the Huntington Park Oil Co.'s No. 1 Terwilliger, Section 29-30-9, in the Blanco district in San Juan County, is idle waiting for a sand pump. A bridge in the hole has to be cleared up before any additional depth can be made. The gas pressure is sufficiently heavy to keep the bottom of the hole cleared of water, which makes drilling slow. The San Juan Petroleum Co.'s No. 2 San Juan, Section 9-29-13, at the edge of Farmington, is drilling at 1,050 feet and due to strike the Picture Cliff sand. If gas is encountered, it will be saved between casings and the test continued on down to the Mesa Verde sands. A. Peterson, trustee, No. 2 Garland, Section 34-29-11, in the Kutz Canon district, is drilling below 500 feet. Continental Oil Co.'s No. 17 Santa Fe, Section 2-29-19, Rattlesnake Dome, is drilling at 4,184 feet. This test is expected to develop something of interest at almost any time. Union Oil & Mining Co.'s No. 2 Pine, Section 8-29-9, is stringing new cable after which fishing will be resumed.

In McKinley County, the Continental Oil Co.'s No. 1 Santa Fe, Carica Dome, Section 9-17-7, is drilling at 2,947 feet.

Utah

Utah operations revealed little interest over the holidays. The most important development was a show of oil in the Mid-American Oil Co.'s test on Section 17-43-15, near St. George, in Washington County, at 954 feet. It is not known what it amounts to, but a water shutoff will be made after which the showing will be tested. The Midwest Exploration Co.'s No. 3 Ashley Creek, Section 23-5-22, Uinta County, is still redrilling with old bottom at 1,655 feet. Same company's No. 1 Early, Section 13-14-6, Duchesne anticline, is still cleaning out above the old bottom. The Phillips Petroleum Co.'s test on Section 16-27-16, Barrier Creek Dome in Wayne County, has not yet gotten material on location. The Texas Production Co.'s No. 1 Shipley, Section 5-27-14, Sweetwater anti-

(Continued on Page 129)

MORE DRILLING IN TURNER VALLEY; IMPERIAL PLANS ACTIVE YEAR

By Victor Lauriston
Staff Correspondent, Canadian Fields

CHATHAM, Ontario, Jan. 7.—Throughout the Canadian West, drilling has been seriously hampered by severe weather conditions. The extreme cold and the heavy snow fall the latter part of December have tended to slow down operations; and a number of tests are shut down pending an improvement in weather conditions. The roads in many sections were blocked by snow as the result of recent blizzards, and sleighs and teams are being used for hauling instead of trucks.

In the Turner Valley Field, Imperial Oil, Ltd., and its various subsidiaries are planning to extend materially their drilling operations in the coming season. It is unofficially intimated that the various Imperial organizations will, this year, have 15 drilling outfits at work in this one field; and that 10 new rotary outfits have been ordered for use in the Turner Valley Field and other parts of the Canadian West. The Imperial subsidiaries now have 11 outfits at work in the Turner Valley. Its present equipment, exclusive of outfits on order, includes seven rotary outfits and six strings of cable tools, the latter having been used for the earlier drilling. During 1927 the Imperial has spent considerable money improving its facilities in the Turner Valley; and at the nearest rail point at Okotoks. At Okotoks the company has bought considerable land adjacent to the railroad tracks, put in a siding, and set up a warehouse, tool platform and a still-leg crane and pipe skids. Equipment and casing for the field will be transshipped at this point. In the field itself a large structural steel warehouse with traveling crane has been built and a 24-stall structural steel garage for tractors and trucks with repair pits and automotive repair machinery; while a structural steel bridge across Sheep River south of the Royalite camp will connect the two sections of the field. While full details of the Imperial program of operations for 1928 have not been made public, all indications point to a rapid expansion.

Five Additional Tests

The program is understood to include five additional tests by the Royalite Oil Co. for which tentative locations have been made. Royalite No. 12 will be a rotary test in LSD 3, Section 13-20-3w5; the derrick will be run up in the course of the winter, the test to spud in as early as possible in the spring. Royalite No. 13 has been located in LSD 6, Section 13-20-3w5, and work has been commenced on derrick and machinery is being moved in. Royalite No. 14 is building derrick and moving in machinery in LSD 4, Section 7-20-2w5; a rotary outfit will be used on this also. Royalite No. 15 has a tentative location in LSD 1, Section 12-20-3w5, offsetting McLeod Oil Co.'s No. 1. Cable tools will be used. Royalite No. 16, offsetting McLeod's No. 3 Blairmore sand producer, has a location in LSD 1, Section 12-20-3w5. A cable outfit will be used.

Royalite No. 6, LSD 16, Section 31-10-2w5, rotary test, is reported drilling at 3,625 feet. Royalite No. 8, LSD 15, Section 12-20-3w5, is at 2,536 feet and being rigged up to resume drilling with a rotary outfit replacing that damaged by fire in November. Royalite No. 9, LSD 6, Section 13-20-3w5, is drilling at 2,584 feet. Royalite No. 10, NE, Section 12-20-3w5, is down 2,173 feet with a cable outfit, and drilling.

Dalhousie Oil Co.'s No. 1, the old Southern Alberta No. 1 flowing well, LSD 4, Section 18-20-2w5, diamond drill test, has been cemented at 4,413 feet,

(Continued on Page 113)

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Deepening Operations Halt Production

Completions in Long Beach Area Offset Temporarily By Upper Zone Producers Being Killed Preparatory to Further Drilling

By L. P. Stockman
Staff Correspondent, California Fields

LOS ANGELES, Calif., Jan. 9.—The daily output at Long Beach did not show any change during the last week, but production curves should reflect a definite increase in the near future. The failure of this field to register substantial increases from week to week as a result of deep-sand completions is attributed to the fact that the production added by these new wells has been offset to some extent by the killing of upper zone producers preparatory to being deepened. Over 100 wells have been taken off production in the last three or four months for deepening and while a large number of them should be recompleted early this year the field has lost their aggregate production in the meantime. This factor must be taken into consideration when computing the effect of deep sand exploitation on field production. A check reveals the fact that nearly one-third of the entire production of the Long Beach Field at the present time is coming from the lower zone, the other 80,000 bbls. being produced by approximately 600 wells from the upper horizon. The 23 deep sand wells on production at the present time are making approximately 38,000 bbls. per day.

Drilling charts show 30 wells below the 5,000-foot level at the present time, 10 of which are rapidly nearing completion in the deep sand at 6,000 feet. Forty additional drillers are rotating ahead between 4,000 and 5,000 feet and a similar number are making hole between 3,000 and 4,000 feet. This indicates a rather well-balanced drilling program with a possible completion of about 75 wells in the deep zone during the next three months. It is needless to say, therefore, that field production is scheduled to show a substantial increase early in 1928.

Peak Expected in March

Recent operations tend to indicate that the development peak will probably be reached during March, although numerous deep sand completions may be anticipated during the month of February. About 15 new wells should be finished in January, several of which should be completed in the next 10 days. The Pan American is preparing three potential deep sand producers for early production and this trio should be finished possibly in the next week. One of these wells, No. 2 Anderson, would have been in several days ago if everything had gone according to schedule, but the existence of an affinity between this well and the Rio Grande's No. 1 Coffin prevented completion. The crew started to swab No. 2 Anderson from the 6,045-foot level in anticipation of substantial production only to find that it was pulling in rotary mud from No. 1 Coffin, a neighboring well which was drilling at 5,708 feet. In order to eliminate this channel the Pan American forced 100 sacks of cement into No. 2 Anderson under pressure and the reappearance of the cement in No. 1 Coffin is believed to have solved the difficulty. It is problematical what effect this cement job will have on the future production of these two wells and both will be watched very closely upon completion.

Eight new wells were spudded in at Long Beach in the last week and present indications point to the probable starting of about 10 more in the immediate future. The Richfield Oil Co., which has become one of the most aggressive operators in the Long Beach Field, is starting two new wells, No. 3 Monrovia and No. 1 Soco, both of which will be spudded in as soon as rotary equipment has been rigged up. The latter well, which is situated near Willow and Cherry Streets, is located on an eight-acre lease held by the South Coast Oil Co. The Richfield interests recently concluded negotiations for development of the deep zone underlying this property and an aggressive campaign is contemplated. The General Petroleum recently surrendered this property to the South Coast Oil Co. after extended litigation, the final settlement permitting the former to retain the two wells producing from the shallow zone. The deal with the Richfield gives that company four locations for deep sand exploitation.

Another Deep Sand Producer

No. 14 Haas has just been added to the Richfield's list of deep sand producers and like its immediate predecessors, it showed a large initial yield. This new well, which was carried down to the deep sand and finished at 6,160 feet, came in flowing 3,270 bbls. of exceptionally clean 30.2 gravity oil and approximately 3,000,000 feet of wet gas daily. With the water shut off made at 5,450 feet the well has a penetration of 710 feet. No. 14 Haas is the sixth deep zone completion chalked up by the Richfield Oil Co. at Long Beach and the company's field department expects to bring in two more, No. 7 Booth and No. 5 Delaney, some time next week. The Union killed No. 13 Long Beach Community, a recent deep sand completion, because of the miserable showing made, and drilling has been resumed. It is scheduled to be given another test somewhere around the 6,000-foot level within the next week or 10 days.

The George F. and Paul J. Getty interests which have been prominent in all recent major fields, have undertaken a rather ambitious joint drilling program at Long Beach and the two wells now under way will be supplemented by four more in the near future, as rotary equipment is being rigged up in Nos. 21, 22, 23 and 24. The Shell is stepping right along with its drilling program involving 17 projects in this field and, while the majority of these holes will probably not be finished until some time in February, No. 11 Cresson is expected to lead the way this month.

Good Well in Sight

J. E. O'Donnell, who recently spudded in No. 65 Herwick, is now running six strings of tools but this work will be increased by an addition of several more within the next 30 days. McMillan & Campbell have an exceptionally good-looking well at 6,285 feet and it should be finished within the next few days. It is showing plenty of kick and the outlook is very encouraging for substantial production. The Delaney Petroleum Corp.'s No. 3 Temescal is another exceptionally good-looking prospect and with A. J. (Art) Delaney giving it his personal attention it is needless to say that maximum production can be anticipated. A comilation of figures covering the activities of two oil wells on property owned by the Long Beach school district, reveal that, in five years the wells have earned for the school treasury a total of $443,000. The wells, located on a 2-acre school site purchased by the Board of Education at Willow and Walnut Avenue several years ago, have been paying the school authorities 40 per cent of the total production since they were completed. A new lease now being considered by the Board of Education for drilling to the newly-discovered deep oil sands would give the school district a one-sixth royalty. A clause included in the proposed lease requires the lessees, the Malcolm-Davis Oil Syndicate, to begin drilling operations within 30 days after the signing of the instrument.

Seacliff

Standard Oil Co. of California inaugurated the policy several years ago of acquiring at least one piece of protective acreage in each wildcat area to be tested out by any of the other major companies. The wisdom of this practice is quite obvious and results have shown this policy to be productive of good results over a period of years. It is rather peculiar to note that some of the other large companies have failed to follow out the logic of the Standard. That old well-known law of averages has been working to perfection during the past six years and a consistent acquisition of protective acreage during that time has been more than justified. The future may not hold forth the same opportunities but this practice should nevertheless prove advantageous as new fields are almost certain to be discovered from time to time. The Standard works on the assumption that it should be represented in all areas to be prospected by other major concerns as large companies are always guided by competent geological advice and the section to be tested therefore must have some merit. Lease maps indicate that the Standard is represented in practically every field in California but it looked for a time as though the company would not be among those present at Seacliff, Ventura County's latest field, as practically every bit of potential oil land was leased up before the initial well was spudded in. The Standard saw an opening after production was developed, however, and immediately opened negotiations for a lease on the Southern Pacific Railroad's right of way which bisects the field a short distance from the ocean front. This choice piece of acreage will be developed on a cost plus basis and while it will only hold a limited number of wells, about 20, it should show favorable production. Material has just been placed on ground for the first well and rig construction will be pushed ahead as quickly as possible.

Development of this right of way at Seacliff recalls similar work last year by the Standard at Huntington Beach where that company successfully drilled up the Pacific Electric Railroad's right of way which parallels the ocean front in the western part of the town lot area. The Pan American was the first oil company in California to intensely develop a railroad right of way, the initial drilling being done along the Union Pacific Railroad's tracks in the Long Beach Field. This lease incidentally has proven a very productive one and the company is carrying several former upper zone producers down to the lower horizon at the present time. A check of present drilling operations in the Seacliff Field, located approximately 6 miles west of Ventura, indicates the probable completion of five or six new wells within the next two weeks, unless something unforeseen should develop in the meantime. Field production will not reflect the total aggregate initial daily production of these new wells as they will have to be beaned down or closed in entirely due to the absence of pipe line facilities. It is rather difficult to say just who will bring in the next new well as the Chanslor-Canfield Midway Oil Co., Pan American and Miley Oil Co. all have one or more drilling projects on the verge of completion.

Ventura Avenue

The Associated brought in No. 50 Lloyd in the Ventura Avenue Field a few days ago flowing 925 bbls. of 29.1 gravity oil daily from the 6,500-foot level, and while the daily output was cutting about 8 per cent when this gauge was made it has since cleaned up. The Associated has spudded in four new wells during the past 10 days and another, No. 3 Ventura Land & Water, is expected to get under way before the end of next week. The Shell has two new wells nearing completion on the Edison property and while it will be another 30 days before any additional completions will be added on the Taylor lease there are three projects on this property which should be brought in almost simultaneously at that time. The Petroleum Securities spudded in No. 7 Orton a few days ago and this new hole gives the company six drilling projects in the Ventura Avenue Field at the present time.

Kern River

The General Petroleum carried off completion honors in the Kern River Field during the past week by bringing in three new producers on the Sill and Whetmore properties out on the west front. The company's successful completion on the latter lease was No. 7 which resulted in a 175-bbl. pumper from 2,042 feet. Nos. 30 and 36 on the Sill lease were good for 190 bbls. and 170 bbls., respecitvely, the former being finished at 2,220 feet and the latter at 2,165 feet. The General Petroleum's next acquisition in this area should be No. 16 Sill which was cemented a few days ago at 2,078 feet. The Associated brought in No. 35 in Section 23-28-27 and this new producer

TANKER SHIPMENTS FROM LOS ANGELES TO ATLANTIC AND GULF COAST PORTS

Commodity—	Total This Week	Daily Average	Total Last Week	Daily Average	This Year to Date	Same Time Last Year
Crude oil	96,410	13,773	149,322	21,332	96,410	223,391
Fuel oil	.....	.....	79,544	11,363	.....	334,002
Diesel and gas oil	.....	.....	149,999	21,428	.....	75,405
Gasoline	171,617	24,517	.....	.....	171,617	331,061
Coastwise—						
Crude oil	260,617	37,231	426,889	60,984	260,617	1,031,648
Fuel oil	222,070	31,724	394,976	56,425	222,070	665,566
Diesel and gas oil	49,098	7,014	4,450	636	49,098	.....
Gasoline	196,271	28,039	269,245	38,464	196,271	355,022
Kerosene	.....	.....	14,750	2,107	.....	2,955
Tops	.....	.....	25,175	3,596	.....	.....
Exports—						
Crude oil	.....	.....	60,401	8,629	.....	123,726
Fuel oil	459,948	65,707	271,754	38,822	459,948	958,174
Diesel and gas oil	10,249	1,464	3,824	546	10,249	30,085
Gasoline	156,499	22,357	335,105	46,444	156,499	114,770
Kerosene	3,191	456	50,125	7,161	3,191	136,251

TANKER SHIPMENTS FROM SAN FRANCISCO TO ATLANTIC, GULF COAST PORTS

Diesel and gas oil	93,515	13,359	.....	.....	93,515	.....
Gasoline	75,477	10,782	71,980	10,283	75,477	94,961
Lubricants	.....	.....	.....	.....	.....	58,110
Coastwise—						
Fuel oil	108,968	15,567	3,871	553	108,968	49,553
Diesel and gas oil	.....	.....	15,680	2,240	.....	29,916
Gasoline	75,591	10,799	53,176	7,597	75,591	291,910
Kerosene	29,862	4,266	2,882	412	29,862	3,680
Exports—						
Fuel oil	.....	.....	124,760	17,822	.....	.....
Diesel and gas oil	.....	.....	11,911	1,702	.....	.....
Gasoline	77,816	11,116	19,680	2,811	77,816	65,382
Kerosene	.....	.....	.....	.....	.....	60,780

registered an initial pumping of 180 bbls. daily from 2,255 feet, the oil testing 14.2 degrees. The Brownmoor Oil Co., which has heretofore operated exclusively in southern California, is putting up three new rigs out on the west front in Section 16-28 27 and two of these projects are scheduled to get under way within the next 10 days. There are about 10 new wells out on the west front which should be completed within the next two weeks and this area will therefore experience a rather active period. The Standard completed two new producers in the Midway Sunset Field during the week, their aggregate initial daily production being 510 bbls. The company's No. 35 in Section 3-32-24 came in doing 180 bbls. daily from 4,260 feet while No. 51 in Section 29-31-24 started off doing 330 bbls.

Seal Beach

The Associated's No. 10 Bryant was the only well put on production in the Seal Beach Field during the past week but there is a possibility that additional completions may be anticipated in the older section of the field from time to time as the Marland, Standard and Associated are all engaged in normal development. The Associated's new well, a recompletion after being redrilled and deepened from 4,528 feet to the Selover zone at 5,006 feet, came in flowing 1,275 bbls. of 26.1 gravity oil daily. Development work has practically ceased in the town lot section of the Seal Beach Field and the numerous mechanics' liens which have been piling up for several weeks have resulted in a number of foreclosures. Seal Beach production has been consistently declining for the past several weeks and while this might ordinarily be expected to continue due to the settling of production in the town lot area it would not be surprising if this field was doing about 50,000 bbls. per day before the close of the coming summer. The Associated, Marland and Standard are only doing a limited amount of development work at the present time but there is a probability that drilling operations may be increased within the next three or four months. Operators may, of course, affect a gentlemen's agreement restricting future work but some difficulty may be experenced in arriving at an equitable basis for curtailment as the field is so cut up geographically and divided in such a way geologically that the action of one company may affect the future policy of others It is a rather complicated situation but with determination there is no reason why both drilling and production can not be kept down to a minimum. It is rumored that some little difficulty has arisen regarding future development of the lower, or Wasem, zone in the older section of the field and while drilling operations at the present time do not reveal any movement under way to tap the lower sand this may later develop in the course of time.

Dominguez

The Union recompleted No. 12 Hellman in the Dominguez Field during the early part of the week after cleaning out to bottom, 4,232 feet, but the rejuvenation process did not result in large production as the well is only making 75 bbls. of 30.4 gravity oil daily. The Brownmoor Oil Co. failed to effect a satisfac ory water shut off in its deep sand project in the Inglewood Field and preparations are being made to run in a string of 6¼-inch and cement a little further down. The Brownmoor interests are trying to develop deep sand production and if the company is successful several offsets will be required to protect the adjoining property of several companies. The attempt of the Brownmoor Oil Co. to develop deep production is especially interesting in view of the fact that other operators have refrained from drilling into the lower zone for over a year. Ths horizon is being held intact pending the arrival of improved conditions within the industry and this policy will undoubtedly continue in effect indefinitely unless someone forces the issue. The property of the Brownmoor Oil Co. is not located very advantageously with respect to structure, although the company may possibly secure edge production.

Richfield-Brea Olinda

The Continental Oil Co. chalked up another successful producer on its Pyne property in the Richfield district when No. 6 was brought in doing 310 bbls. of 24.1 gravity oil daily from 4,602 feet. The Standard, California Petroleum and Union are also expected to finish one or more new wells in this field in the near future. The Standard should complete No. 2 Lock and No. 3 Vejar, while the California Petroleum is scheduled to bring in No. 3 Hartwell. The Union's potential producers are scattered over several leases. The Shell is the only concern doing any appreciable amount of development work in the Fullerton, or Brea Olinda, Field at the present time. In addition to the two deep tests, No. 40 Columbia at 7,115 feet and No. 2-A Puente at 5,827 feet, the company is working on No. 7 Fisher and Nos. 14 and 16 on the Orange property. Drilling operations in the Montebello Field will probably result in the completion of two or three new producers within the next 30 days as No. 16 Monterey of the St. Helens Petroleum, No. 71 Baldwin and No. 2 Benedictine of the Standard are within a few hundred feet of completion.

Round Mountain

The Shell recently suspended drilling operations on No. 6 Elb in the Round Mountain Field at 3,760 feet and the hole is being plugged for a test around the 1,900-foot level. The Honolulu Consolidated, which took over the government permit holdings of the Elbe Oil Co., discoverer of the Round Mountain Field, is running five strings of tools at the present time and it looks as though the company contemplates a continuous drilling program as additional rigs are in course of construction. The Union and General Petroleum have shut in their respective wells in the Granite Canyon area about 2 miles southeast of the Mount Poso Field due to the absence of transportation facilities. The former's No. 1 Glide showed an initial potential of approximately 500 bbls. a day, while the latter's No. 1 Tribe was brought in pumping 275 bbls. daily. Drilling operations in the Mount Poso Field showed no change during the week and conditions in this field will probably continue inactive during the next several months. The Goleta Field, located a little less than 15 miles west of Santa Barbara, has proved a terrible disappointment from a production standpoint, the decline being so great that drilling operations were brought to an abrupt end a few months ago. The Goleta Field produced 280 bbls. per day during November, about 150 bbls of which came from one well, the Santa Barbara Oil Co.'s No. 2-A Hollister. This producer sanded up a few days ago following a very perceptible decline of several days' duration.

Northern California Wildcats

The General Petroleum put its Edison wildcat on a pumping test during the past week and while it failed to result in commercial production there is ample evidence to support the theory that a new field may exist somewhere in the immediate vicinity. The General Petroleum's project is a little over 5 miles away from the nearest production in the old Kern River Field and since the intervening territory precludes any connection between these two areas the outlook is favorable for a new field around Edison. The Pacific Eastern picked up a rather good-looking oil sand in the Fruitvale area a few miles northwest of the same company's wildcat at Union Avenue and it is the present intention to land a string of 10-inch preparatory to an early test. The Pacific Eastern has brought the Fruitvale and Union Avenue districts into the limelight during the past several months by picking up oil and gas showings in each area. It is recommended that both sections be watched very closely during the next few months as this immediate territory has all the earmarks of potential oil land. The Standard is making a very determined effort to secure production in the Camarillo sector of Ventura County where the company has a 5,720-foot well which is reported to have shown rather encouraging indications of oil and gas from time to time. The outlook is not exceptionally promising for production under present conditions, however, due to water trouble but the correction of this difficulty may change the entire aspect of the situation. The Shell recently made a preliminary production test on No. 2 Berlywood at Moorpark in Ventura County but drilling was subsequently resumed when the showings failed to result in production. The Continental Oil Co. concluded drilling operations on its Sargent wildcat in Santa Clara County at 1,456 feet in order that a test may be made of some rather favorable-looking showings encountered around the 1,200-foot level. The North American successfully recovered from a rather difficult fishing job in its Delano wildcat early this week and the crew will begin making new hole within a few days. There has been considerable leasing in the McFarland and Delano areas during the past few months, although there have been two very definite trends, one area extending east and northwest of McFarland and another about 5 miles further east and a little to the south of the North American's present test near Delano.

Southern California Wildcats

The Petroleum Securities has entered the Potrero district discovered by the Associated Oil Co. several months ago and actual spud is contemplated within the next few weeks. The Petroleum Securities is centering on the district north of the recent activity in this area and its holdings include some acreage originally held by the Marland Oil Co. The company's new well is about a mile northwest of the Marland's No. 1 Connolly, a duster, and about a similar distance northeast of the Associated's discovery, No. 1 Cypress. The Standard abandoned a duster about a half mile southeast of the Petroleum Securities' new location several years ago, although considerable gas was encountered during the course of work. The Associated's No. 1 Cypress, the discovery well, is still held up with water trouble and it begins to look as though it will require another hole to locate the general trend of the structure. George F. Getty's wildcat at Seal Beach is probably one of the most important tests in the southern part of the state at the present time. Actual spud has not yet been made but with the preliminary work nearing completion the crew should begin making hole along about the middle of next week. The Olympic Refining Co.'s wildcat at Sunset Beach may also bear watching although this location is not generally regarded as favorable as Getty's acreage which lies within the corporate limits of the city of Seal Beach. Should the Getty interests succeed in getting production in this well a new town lot drilling campaign can be anticipated as the acreage practically consists of 50-foot lots. The Associated's wildcat at Pico has been held up for the past several days because of mechanical trouble but an early recovery is anticipated. The Monterey Park Oil Co. is drilling ahead in a hard sand at the present time and while this test has shown rather encouraging indications of gas from time to time nothing of importance has been logged during the past few hundred feet. The White Behr Petroleum, which has a rather interesting wildcat under way in the Watson tank farm area, is drilling ahead at 4,024 feet.

IMPORTANT SOUTHERN CALIFORNIA WILDCATS

Company, Well and Location—	S-T-R	Depth	Status
Associated, No. 1 Cypress, Potrero	34- 2-14	5,408	recemented
Smith & Carpenter, No. 1 Smith, Potrero	35- 2-14	5,282	rebuild rig
Pet. Securities, No. 1 Connolly, Potrero	27- 2-14	Mtl.	building rig
Hurst Oil Corp., No. 1 Inglewood, Los Angeles Co.	28- 2-14	3,772	suspended
Mont. Park Oil Co., No. 1 Browning, Mont. Park	26- 1-12	3,596	hd. sd. drilling
Associated, No. 1 Patterson, Pico	13- 2-12	4,300	hd. sd. drilling
Circle Oil Co., No. 1 Pomeroy, Manchester	23- 3-14	4,280	suspended
Shell, No. 1 Mission, San Fernando	4- 2-15	4,928	fishing
Sou. Calif. Drlg. Co., No. 1 Matteson, El Segundo	1- 3-15	4,870	suspended
Carr, O. K. No.2 Foster, San Juan Capistrano	13- 8- 8	4,230	suspended
Andrews, Otis, No. 1 Lancaster, Los Angeles Co.	23- 8-13	Rig	rigging up
Southwest Pet. Co., No. 1 Ramsauer, Watts	4- 3-13	4,302	suspended
Security Pet. Co., No. 1 Lynwood, Los Angeles Co.	13- 3-13	495	sd. drilling
Dominguez Ext., No. 1 Compton, Los Angeles Co.	27- 3-13	5,510	bailing
San Clemente Oil Co., No. 1 Peck, Hawthorne	20- 3-14	5,690	hd. sd. drilling
O Donnell, J. E., No. 1 Dupree, Hawthorne	29- 3-14	5,304	suspended
White Behr, No. 1 Watson, L. A. County	21- 4-14	4,024	hd. sd. drilling
Shell, No. 1 Allec, Placentia	31- 3- 9	5,619	hd. sd. drilling
Buttrum, F. W., No. 1 Richfield, Orange Co.	36- 3- 9	130	sd. drilling
Son, C. A., No. 1 Pinkerton, Orange Co.	5- 5-11	3,620	suspended
Olympic Refg. Co., No. 1 Sunset Beach, Orange Co.	19- 5-11	Rig	rigging up
Getty, Geo. F., No. 1 Seal Beach, Orange Co.	14- 5-12	Rig	rigging up
Stein, Leo, No. 1 Long, Orange Co.	21- 5-11	5,135	suspended
Shell, No. 1 Stern, Orange Co.	22- 3-10	3,211	hd. sd. drilling
Hemet Pet. Co., No. 1 Ward, Riverside Co.	9- 5- 1	1,493	hd. sd. drilling
Fuller & Gray, No. 1 Puente, L. A. County	14- 2-10	Rig	suspended
Anchor Oil Co., No. 1 Hudson, Los Angeles Co.	19- 2-10	2,395	suspended
Mesa Pet., No. 1 Newport, Orange Co.	21- 6-10	1,220	hd. sd. drilling
Pet. Securities, No. 1 Fairview, Orange	3- 6-10	4,482	hd. sd. drilling
Davenport O. & G., No. 1 San Marcos, San Diego Co.	30-12- 2	350	hd. sd. drilling
Turner, S. S., No. 1 Escondidl, San Diego County	25-12- 2	320	sd. drilling

IMPORTANT NORTHERN CALIFORNIA WILDCATS

General Pet. Co., No. 2 Ochsner, Kettleman Hills	26-22-18	5,770	br. sh. drilling
South Coalinga, Well No. 1, Kettleman Hills	35-24-19	2,930	pipe trouble
Monocline Dev. Co., Well No. 1, Kettleman Hills	7-21-21	4,308	br. sh. drilling
McPhail, Hugh, Well No. 1, Kettleman Hills	13-24-18	2,095	plugging
Milham Expltn., No. 3 Kettleman, Kings Co.	2-22-17	6,249	little gas
Shell, No. 2 Berlywood, Moorpark	32- 3-20	6,173	hd. sd. drilling
Continental Oil Co., No. 1 Burnham, Ventura Co.	22- 5-18	3,600	hd. sd. drilling
Star Petroleum, No. 2 Canet, Ventura Co.	13- 3-23	4,371	hd. sd. drilling
Standard, No. 1 Camarillo, Ventura Co.	29- 2-20	5,720	bailing
Petroleum Sec., No. 1 Diablo, Ventura Co.	26- 5-18	3,950	br. sh. drilling
Parkford, E. A., No. 1 Strathern, Ventura Co.	5- 2-18	4,002	rigging rotary
Shell, No. 1 Strathern, Ventura Co.	6- 2-18	1,672	hd. sd. drilling
Miley Oil Co., No. 1 Red Mountain, Ventura Co.	7- 3-23	980	suspended
Richfield, No. 27 Piru, Ventura Co.	35- 5-18	1,902	suspended
Superior Oil Co., No. 1 Fillmore, Ventura Co.	33- 4-20	1,189	hd. sd. drilling
McAdams, J. E., No. 1 Buttonwillow, Kern Co.	26-29-23	3,148	br. sh. drilling
Milham Expltn., No. 2 Buttonwillow, Kern Co.	8-28-23	4,662	gas well
Milham Expltn., No. 2 Kern, Kern Co.	8-28-23	2,580	hd. sd. drilling
Milham Expltn., No. 3 Buttonwillow, Kern Co.	7-29-23	4,150	suspended
Morris, F. L., No. 1 Semi ropic, Kern Co.	16-27-23		location
Pacific Eastern, No. 1 Fruitvale, Kern Co.	21-29-27	3,850	little showing
Pacific Eastern, No. 1 Bakersfield, Kern Co.	6-30-28	5,170	oil show
General Pet., No. 1 Edison, Kern Co.	5-30-29	4,006	pumping test
Getty, George F., No. 1 Edison, Kern Co.	22-29-29	3,717	plugging back
Midway Northern, No. 1 Edison, Kern Co.	29-29-30	1,511	br. sh. drilling
Frame, Bruce, Kern Co.	18-26-28	2,145	oil show
Shell, No. 1 Mon Bluff, Kern Co.	3-28-28	3,680	hd. sd. drilling
North American, No. 1 Wallace, Delano	5-25-26	3,703	hd. sd. drilling
Fresno Madera Oil Co., No. 1 Clovis, Fresno	18-12-21	3,915	hd. sd. drilling
Barneyberg Oil Co., No. 1 Brown, San Luis Obispo	25-32-14	2,291	hd. sd. drilling
Richfield, No. 1 Wreden, San Luis Obispo Co.	10-29-17	2,601	fishing
Miley Oil Co., No. 1 Carissa, San Luis Obispo Co.	15-29-17	2,477	hd. sd. drilling
Union Oil Co., No. 1 Huasna, San Luis Obispo	34-32-15	Rig	rigging up
Shell, No. 1 Cowell, San Mateo Co.	8- 6- 5	5,313	hd. sd. drilling
Shell, No. 1 Rossi, Petaluma	8- 5- 6	316	sd. drilling
Thomas & Hammill, Well No. 1 Alameda Co.	16- 3- 3	1,470	suspended
Buttrum, F. W., No. 1 Odin, Santa Barbara Co.	20-25-27	1,968	suspended
Gorham, G. O., No. 1 Orcutt, Santa Barbara Co.	33-10-34	Mtl.	suspended
Becker, Geo. F., No. 1 Summerland, Santa Barbara	33- 4-25	3,060	water trouble
Petroleum Exp. Co., No. 1 Modoc, San a Barbara Co.	20- 4-27	2,091	sd. sh. drilling
Birch Oil Co., No. 1 Porterville, Tulare Co.	13-20-26	3,114	show gas
Fort Wayne Synd., No. 1 Goodcell, Madera Co.	22-10-17	2,250	fishing
Continental Oil Co., No. 2 Smith, Colusa Co.	31-18- 4	4,171	hd. sd. drilling
Continental Oil Co., No. 1 Sargent, Santa Clara Co.	31-11- 4	1,456	to test

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Important Find in Central Ohio Area

Rich Oil Sand in the Second Berea in Washington Township, Guernsey County. Michigan Hopes for New Pools

By Whit
Staff Correspondent, Central West

FINDLAY, Ohio, Jan. 9.—The first week of 1928 shows but 10 completions in the Central West Field, comprising, Lima Field, Central Ohio, Indiana and Illinois, the latter failing to report any new wells. With the advent of the new year almost zero weather prevailed with heavy snow causing the shutting down of many of the drilling wells on account of frozen water lines.

In the Lima Field of northwestern Ohio, W. F. Johnston drilled in his No. 4 on the George F. Snyder farm, being in the northeast corner of the lease, in the southwest quarter of Section 33, Perrysburg Township, Wood County. This is known as the C. Shoemaker farm on the map. The well topped the Trenton at 1,225 feet and at 25 feet in the sand produced an initial of 12 bbls.

The Ridge Oil & Gas Syndicate of Dayton, Ohio, drilled in No. 4 well 250 feet from the north line and 650 feet from the east line of the C. S. Chambers farm, on the oil map as the A. Steen farm, in the southwest quarter of Section 35, Biglick Township, Hancock County. Top of the sand was found at 1,390 feet and drilled 100 feet in the sand, the well showing an initial production of 25 bbls.

J. H. Murphy & Son are reported to have what shows for an excellent producer at their No. 3 on the David Hunker farm, Section 21, Liberty Township, Seneca County, near Bettsville, north of Tiffin, at a depth of 1,609 feet, and has a heavy pressure, flowing its oil.

Central Ohio

A very important oil find has been made in the Central Ohio area, that will mean the drilling deeper of many of the wells that were stopped at the first Berea pay sand as the second Berea looks better than the upper pay. The Birmingham Oil & Gas Co. has drilled No. 2 in the northwest corner of the Elmer Redd farm, in the southwest quarter of Section 20, Washington Township, Guernsey County, into the second Berea and has struck a rich oil sand with the first 10 feet of pay producing a high grade amber oil. The well is estimated good for 8 bbls. This well is located just 1,000 feet south of the Birmingham company's big gas well on the Braniger farm which is also producing gas from the second Berea. It looks as though a new Berea oil field has been opened, and as no tests have been drilled south, or either side of this well for several miles, further drilling may open a Berea oil pool worth mentioning. The Birmingham company is delivering several million feet of gas from its wells on the lease adjoining the Redd well on the north. The Ohio Fuel Gas Co. is taking the gas. This company is under the management of Anson Henry Russell of Cleveland, Ohio. Additional wells will be drilled at once south of the Elmer Redd well and the results will be looked forward to with interest.

The Ohio Fuel Gas Co.'s second streak Berea sand well in Addison Township, Gallia County, Ohio, is reported good for around 250,000 feet. This company has also made a location for a deep test on the Robert Goodall farm, Section 29-30, Walnut Township, same county. This is in practically new territory and indicates that something better will be found by additional development. The Atha-Webber Co., of Columbus, Ohio, is also starting a test on the Mary L. Spear farm, in the northeast quarter of Section 1, Walnut Township. Ralph Brothers and others are drilling a test in the southwest quarter of Section 23, also in Walnut Township.

The Jupiter Oil Co., is drilling a test on the Daniel Little 160-acre farm, in the northwest quarter of Section 3, Rose Township, Carroll County.

In Monroe Township, Holmes County, the East Ohio Gas Co.'s second test, 450 feet from the north line and 400 feet from the east line of the William Marvin 100 acres, Lot 22, is a fair gas producer. In Knox Township, same county, the same company's test 480 feet from the north line and 1,900 feet from the east line of the John G. Stetzline 202-acre farm, Section 16, is reported a fair gas producer. In the same township, the Arkansas Fuel Oil Co. has an average gas well at a test on the C. E. Kaylor farm, Section 15.

The heavy snow and cold snap will bring about a partial shutdown of development work in the gas-producing areas of the field.

Indiana

In southwestern Indiana the only completed wells in the State were located during the past several days. Bell Brothers, well-known operators, completed a test 175 feet from the north line and 500 feet from the east line of the Jess Lindy farm, in Survey No. 9, in Clay Township, Pike County. Sand was topped at 1,297 feet and sent to a total depth of 1,309 feet, showing an initial production of 25 bbls. This well is slightly in advance of developments and means that much additional territory looks inviting for early spring season work.

William Bell and others drilled in a test 250 feet from the north line and 200 feet from the east line of the Ira Seifers farm, in the northeast quarter of Section 1, Washington Township, Gibson County. Top of the sand at 1,318 feet and drilled 28 feet in the sand to a total depth of 1,346 feet, and the first 24 hours' production is said to have been around 5 bbls. In the same township, the Ohio Oil Co.'s No. 11 well, 250 feet from the north line and 850 feet from the west line of the John Zimmerman farm, in the northwest quarter of Section 12, pumped 8 bbls. from a total depth of 1,595 feet. Top of sand was struck at 1,586 feet. William Bell and others are drilling a test on the Catt and Hatfield farm, Section 6. J. S. Young and others are drilling No. 5 on the Margaret Hollingsworth farm, Section 13, Center Township, Gibson County.

Several wells are due in the high-grade oil development in Prairie Creek Township, Vigo County, and just north of the Sullivan County producing area of Fairbanks Township. The Sisosi Oil Corp. has several strings of tools at work, but the depth of the wells being around 2,000 feet, requires a long time to complete when cold weather comes around.

Illinois

In Wabash Township, Wabash County, in the Allendale Field, the Mahutska Oil Co. abandoned No. 1 well 600 feet from the north line and 200 feet from the east line of the Edward Armstrong heirs' farm, in the southwest quarter of Section 12.

In Friendsville Township, Wabash County and southwest from the Allendale Field, Hartman and others pulled out and abandoned No. 1 on the O. Matheney farm, Section 18, and Evarts and others did the same with No. 1 on the O. Matheney farm, Section 19, same township.

The Mahutska Oil Co. is drilling No. 6 on the Mack Madden farm, Section 7, Wabash Township, Wabash County. C. E. Bothwell is drilling No. 5 Jesse Chil farm, Section 2, same township.

Michigan

Since the Saginaw Field has dwindled down in development work, two spots have been found that probably will mean at least one new field. The well drilled by the Muskegon Oil Co. near Muskegon, topped the sand at 1,620 feet where a string of 6¼-inch casing was set and then only 4 feet of sand was drilled in three hours when the well started flowing and still flows at last report. The oil is loaded in tank cars and shipped to the Standard Oil Co. of Indiana at Whiting, Ind. The well was visited by R. B. Newcombe, assistant to R. A. Smith, state geologist of Michigan, and the assistant declared the new field shows more promising than any in the State. This well was reported showing for 20 bbls., but has surprised everyone, having produced and flowed its oil steadily for several days at the rate said to be 200 to 300 bbls., putting it in a class by itself as far as Michigan oil production is concerned. Doctor Smith, the geologist, says: "While the evidence is not conclusive the well has exceeded our highest hopes. It is located on a favorable structure. It is still too early, of course, to know absolutely that a good pool has been located." Several other tests have already been located in the vicinity of the new well and there has been quite a leasing campaign and the probability is that Muskegon will get a play like Saginaw has enjoyed during the past couple of years.

Oil Showing in Gratiot County

Reports from Ashley are that Miller and others have a test on the C. B. Horrie farm, in the northeast quarter of Section 22, Elba Township, Gratiot County, and not far away from the town of Ashley. Advice is that on Wednesday, the well produced 40 bbls., and on Thursday 18 bbls. This oil was found in the Saginaw sand which was topped at a depth of 2,434 feet; the sand was only tapped and will be drilled deeper later on. This venture is about a half mile south of the gas well struck last year by the Sun Oil Co., near Ashley, which showed better than 1,000,000 feet of gas and the Horrie farm well also has a nice gas showing. This will bring about some new work in that area, although some dry holes have been not far distant from this well.

Parties from Dallas, Tex., are reported to have leased up a large block of acreage near the town of Manchester along the River Raisin, between Adrian and Chelsea and several miles east of where the Jackson County Oil & Gas Co. drilled a 2,000-foot 10-inch hole on the Silvers 6 acres, at the town of Napoleon, in Jackson County. The Napoleon well had a nice gas showing but was not drilled to a depth to find an oil pay sand of any consequence, according to parties familiar with the formations. The Napoleon well was started to find the Trenton Rock sand, but the theory is that it lacked something like 1,700 feet of reaching that formation, but reports are that it will be drilled deeper in a short time. The Silvers farm well is located on the apex of a structure which will also be found in the vicinity of Manchester.

SNOWS SLACKEN WORK IN KENTUCKY; HAYDEN POOL EXPECTING NEW BOOM

By Whit
Staff Correspondent, Kentucky-Tennessee

BOWLING GREEN, Ky., Jan. 7.—Heavy snows and cold weather brought about a slackening up of development work in all sections of Kentucky and Tennessee outside of the active Tri-County Field of Ohio-Daviess-McLean Counties and there are not as many new wells starting there as is usually the case, but a few days of sunshine and work will go with a rush in several areas of the three counties mentioned.

The Hayden Pool, in Daviess County, where one of the best of the late Kentucky wells was completed some time ago, is now taking on what looks like another boom similar to the Ambrose Pool of Ohio County. This Hayden well has made an excellent showing from the start and all available tankage has been filled. Now that the pipe line will be taking the oil, more definite knowledge can be had after it is allowed to produce at its best for a period. The staying qualities of these sands in the three counties are of the best, as the big increase in production in Ohio County shows, having increased from something like 90,000 bbls. monthly to better than 200,000 bbls. per month. Then comes the Dimmick well in McLean County, which will shortly be connected to the Illinois Pipe Line Co., which will bring about a big drilling campaign, as will the area around the small hamlet of Buford, several miles west of the Ambrose Pool, but in Ohio County. The Sunnydale Pool, southeast some 4 or 5 miles from the Ambrose Pool, is the biggest play at this time, as is the intervening territory between the Ambrose and Sunnydale Pools. It is in the intervening territory that the Cumberland Petroleum Co. has brought in two big wells on the big Bob Hamilton farm, and James C. Ellis' big well on No. 2 J. R. Weller farm, near the Mount Moriah Church.

The Dimmick Brothers have not as yet given their well on the Ratliff farm, in McLean County, a shot, as they are awaiting the completion of the pipe line which will be a few days, then the wildcat will be given a thorough testing out. The Dimmick Brothers, owners, are old-time West Virginia operators and will do a lot of drilling on the large acreage under their control.

No completions were reported from the eastern Kentucky Field during the holiday season, all completions being confined to three counties in the western division.

Week's Work

A summary of the week's work in the Kentucky Field shows 16 completions, 12 producers with an initial production of 942 bbls., 4 dry holes and no gas wells. Compared with the previous week, there were 6 less completions, 1 more producer, 427 bbls. more production, 5 less dry holes and 2 less gas wells. The wells were distributed by counties and districts as follows:

County—	Comp.	Oil Wells	Prod.	Dry	Gas
Ohio	14	10	938	4	0
Warren	1	1	3	0	0
Allen	1	1	1	0	0
Total	16	12	942	4	0
Last week	22	11	515	9	2
Difference	6	1	427	5	2

Ohio County Wells

Ohio County leads in all branches of

(Continued on Page 95)

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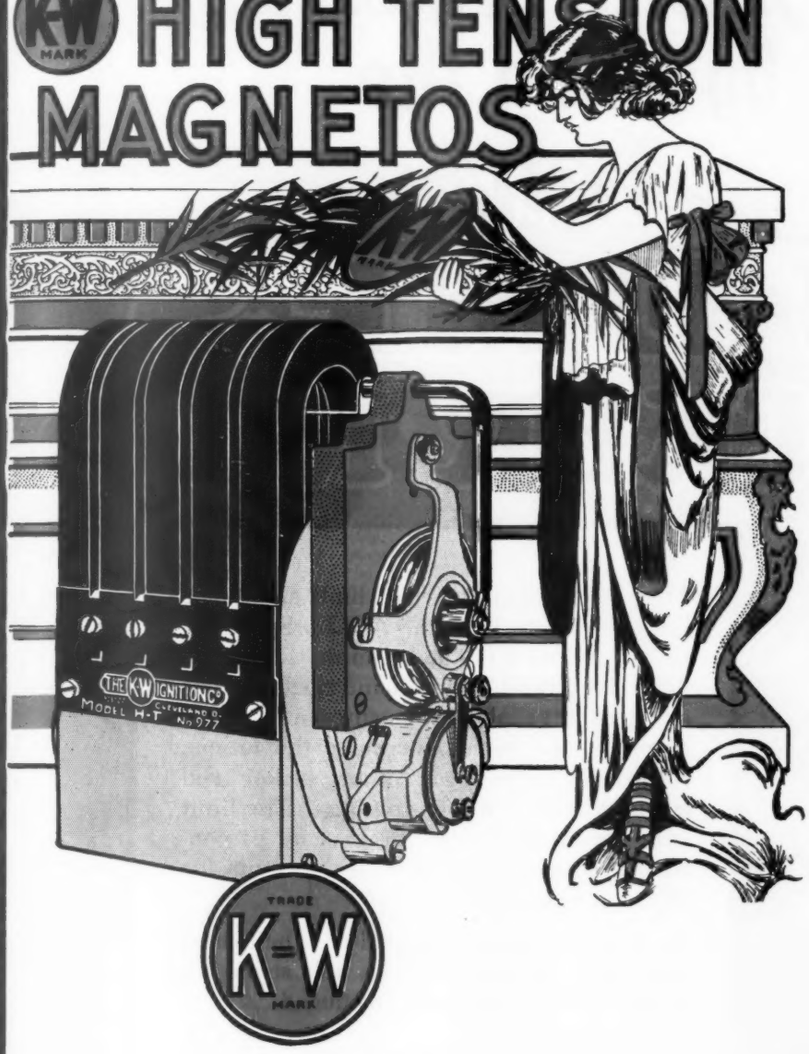

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One Fair Producer in Eastern Area

West Virginia Well Making 30 Bbls. Initial, Drilled 60 Feet Deeper, Increased to 90 Bbls. Daily

By D. S. Wakenight
Staff Correspondent, Eastern Fields

PITTSBURGH, Pa., Jan. 9.—From the beginning to the close of the week no large wells were completed in any district. The holidays caused a slowing down of field work and now zero weather is delaying the contemplated starting of new work.

Generally speaking, producers and the pipe line companies are well prepared for severe weather and the gas companies have an abundant supply to meet all demands. For a good many months the gas companies have been getting ready for such a contingency. Some of the larger gas companies have a greater supply of natural gas than is needed at the present time.

One Fair Producer Completed

The West Virginia fields completed the best well. It is located in a section that has not been fully developed.

On the head waters of Alley Trace Branch, Harvey district, Mingo County, the Public Service Gas Corp. drilled in No. 17 on the Henry Closterman estate, and was reported good for 30 bbls. a day. Subsequently it was drilled 60 feet deeper into the Maxon sand and its production increased to 90 bbls. a day. This is the only district that increased its production during the past year.

In the northeast quarter of Section 28, Hopewell Township, Perry County, Ohio, the Ohio Fuel Supply Co. completed a test on the H. E. Smith farm. It produced 40 bbls. the first 24 hours after completed and shot in the Clinton sand. In the northeast quarter of Section 5, Bearford Township, same county, William Cline & Co. completed a test on the F. D. Bateson farm. It is a gasser in the Clinton sand and showing a little oil.

Licking County

In the southwest quarter of Section 10, Bowling Green Township, Licking County, Robinson & Zangiser completed through the Clinton sand a test on the Herman and Noah Cooperrider farm. It got only a light showing of oil and will probably be abandoned. In Section 20, Liberty Township, Washington County, Charles L. Erb and others completed a second test on the David Epler farm. It is a light gasser in the second Cow Run sand. In Lot 5, Hopewell Township, Muskingum County, I. C. Robinson has started to drill a test on the J. M. Fink farm.

In Section 24, Alexander Township, Athens County, Cook and others have a duster at No. 4 on the Sheldon Woodyard farm. In Section 6, same township, the Wehrle company has a very light pumper in the Berea grit at a test on the J. G. and J. B. Allen farm. In Section 9, Brookfield Township, Noble County, the Ohio Fuel Supply Co.'s test on the Riley Harding farm is a gasser in the Clinton sand. In Enoch Township, Way Wickens and others are drilling a second test on the John Crock farm. In Elk district, F. Markey and others are drilling a test on the G. B. Bonar farm.

In Section 7, Fallsbury Township, Licking County, the Gordon Oil Co. has a duster at No. 7 on the C. E. Van Winkle farm. In the same township, the Arkansas Fuel Oil Co. has a very light pumper at No. 3 on the E. C. Howell 34 acres. In the same township, Section 9, W. L. Brown is drilling in the Berea grit at No. 4 on the Allen Cessana farm. In Perry Township, Coshocton County, the Preston Oil Co. is drilling a test on the John and Lulu B. Wilson farm. In Section 12, Pike Township, the Hope Construction & Refining Co. has a rig up for a second test on the C. Blair farm. The Ohio Oil Co.'s No. 3 on the Robert McKelvey farm is a gasser in the Clinton sand. The Kemrow Co. has the rig completed for a test on the Charles Schomer farm.

In Section 4, Rush Creek Township, Fairfield County, John Alfred and others have a gasser at a test on the William Alfred farm. In the same township, Ruff, Stewart & Co. have a gasser at a test on the J. C. Grove farm. In Section 26, Shankes Brothers & Co. have a very light pumper at a test on the B. F. Whitehill farm.

Shallowest Well

In Lot 6, Section 14, Chatham Township, Medina County, the O. K. Oil & Gas Co. has completed in the Berea grit No. 16 on the T. W. Brinker farm. It produced 10 bbls. the first 24 hours after shot. The total depth of the well is 350 feet, the shallowest well in the eastern fields.

In the southeast quarter of Section 31, Sutton Township, Meigs County, the Ohio Fuel Supply Co.'s test on the Nina Webster farm is a gasser in the Berea grit good for 200,000 feet. In the same township, the same company is drilling tests on the C. S. and M. Davis and Allerton Roush farms. In Sutton Township, the Pure Oil Co. has a 4-bbl. pumper in the Berea grit at a test on the T. J. Mitchell farm. In Section 17, Aurelius Township, Washington County, D. W. Atkinson is drilling a test on the Isaac W. Atkinson farm. In Section 19, Grandview Township, the Yellowhouse Oil Co. has a very light pumper at a second test on the George Lisk farm.

In Newport Township, Washington County, Burton & Co. have a duster at a test on the John Vanvey farm. Bowersock and others had the same luck at a test on the Phillip Barnard farm. In Muskingum Township, Shankland Brothers have a duster at a test on the Meeks heirs' farm. In Salem Township, Weir & Schramm are drilling in the sand on the C. C. Palmer farm.

In the southwest quarter of Section 1, Mill Creek Township, Coshocton County, the Mill Creek Oil Co. completed No. 8 on the Edward Arnold farm. It is a fair gasser in the Berea grit. In Mary Ann Township, Licking County, George H. Long has a light pumper in the Berea grit at No. 3 on the C. W. Dwiggins farm.

West Virginia

In Geary district, Roane County, the South Penn Oil Co. completed in the Big Injun sand No. 66 O. D. Stockly farm. It is good for 25 bbls. a day and is located 1,000 feet north of No. 61.

On McFarlan Creek, Murphy district, Ritchie County, the Hope Construction & Refining Co. completed in the Big Injun sand No. 3 on the Noah and Gay Jordon farm. It is good for 8 bbls. a day and has been connected by the Eureka Pipe Line Co.

In DeKalb district, Gilmer County, the Hope Natural Gas Co. has completed in the Maxon sand a test on the Rosanna Horner farm and it is a gasser. In Center district, the Chartiers Oil Co.'s No. 3 on the Baptist Missionary farm is a gasser in the salt sand.

Cabell and Wetzel Counties

In Barboursville district, Cabell County, the Star Development Co. completed a test on the W. S. Estler farm, a gasser in the Gordon sand. In Center district, Wetzel County, the Hope Natural Gas Co. has drilled deeper its test on the Jefferson Miller farm. It has a light show of oil.

In Washington district, Boone County, the Owens Bottle & Machine Co. completed a second test on the G. T. Hill farm. It is a gasser in the Big Injun sand good for 185,000 feet. In Scott district, same county, the United Fuel Gas Co.'s No. 14 on the Horse Creek Land & Coal Co.'s tract is a light gasser. In the same district, the same company's second test on the Courtney & Co. tract is a gasser good for 300,000 feet. The same company's No. 3 on the same farm is good for 210,000 feet.

In Union district, Ritchie County, the Carnegie Natural Gas Co. has the rig completed for a test on the Prather heirs' farm. In the same district, R. W. Elder has the rig completed for a test on the Ray Wade farm.

Pleasants County

In Washington Township, Pleasants County, the Emerson Oil Co. has placed a drilling machine at the location for No. 37 on the E. N. Cook farm. In Grant district, Swingle Brothers have a 5-bbl. pumper at a test on the Fulton Holdren farm. In the same district, the American Oil Co. is drilling a test on the N. McFarsons farm. In Jefferson district, the Sharp Farm Oil Co. is drilling on the George Sharp farm. In Washington district, Riggs & Brown are drilling on the Myri K. and F. W. Smith farm.

In Harper district, Roane County, the National Oil & Gas Co. has a duster at a test on the D. I. Horner farm.

Week-End Completions

In Sherman district, Boone County, Godfrey L. Cabot completed No. 21 on the Federal Coal Co.'s property, a gasser good for 240,000 feet. In Logan district, Logan County, the Wacatock Producing Co.'s No. 22 on the Dingess Run Coal Co.'s property is a gasser good for 175,000 feet. In the same district, the same company's No. 24 on the same tract is a gasser good for 375,000 feet.

In Jefferson district, Pleasants County, the Sharp Farm Oil Co.'s test on the George Sharp farm is a 2-bbl. pumper in the salt sand. In Sheridan district, Calhoun County, W. H. Bickel has a duster in the Big Injun sand at No. 4 on the James S. Wolverton farm. In Church district, Wetzel County, the Pittsburgh & West Virginia Gas Co. has drilled deeper No. 3 on the James Lewis farm and it is a gasser in the Gordon sand.

On McFarlan Creek, Murphy district, Ritchie County, the Hope Construction & Refining Co. has completed in the Big Injun sand No. 4 on the Noah and Gay Jordon farm. It is a 3-bbl. pumper in that formation. In the same district, J. G. Cothran has completed in the same formation a test on his own farm good for 10 bbls. a day.

In Mannington district, Marion County, Monroe & Laughlin have a gasser in the Gordon sand at a test on the J. W. Tennant farm.

Marshall County

The Manufacturers Light & Heat Co. has a gasser in the Gordon sand at a second test on the Mary J. Fry farm, in Liberty district, Marshall County. In Webster district, same county, S. B. McCracken & Co. have a duster in the Gordon sand at a test on the Joseph Rush farm.

On Little Creek, Spencer district, Roane County, G. L. Cabot has completed in the Big Injun sand his test on the Nettie M. Starr farm. It is a gasser good for 1,000,000 feet.

In Peytonia district, Boone County, the Owens Bottle & Machine Co.'s No. 5 on the Brown Cochran farm is a light gasser. In the same district, the same company's No. 26 on the Coal River Mining Co.'s property is a gasser good for 1,840,000 feet. In Sherman district, the same company's No. 14 on the Peytonia Coal & Land Co.'s tract is a gasser good for 375,000 feet. In Scott district, the same company's No. 8 on B tract of the Little Land & Coal Co.'s property is a gasser good for 250,000 feet.

Test Wells Drilling and Starting

In Center district, Wetzel County, the Manufacturers Light & Heat Co. is rigging up on the Jackson Antill farm. In DeKalb district, Gilmer County, the Hope Natural Gas Co. is rigging up on the Fred S. Wilt farm. In Sheridan district, Calhoun County, McIntosh & Co. have rigged up on the Hays-Stalnaker farm. In Sherman district, the Richtor Oil Co. has abandoned its location on the William Cooper farm. In the same district, W. S. Daley & Son have a rig completed on the Charles Robinson farm. On Pawpaw Creek, Pawpaw district, Marion County, the Carnegie Natural Gas Co. has started to drill on the N. C. Wilson farm and the Owens Bottle & Machine Co. on the M. J. Rice farm.

In McClellan district, Doddridge County, the Manufacturers Light & Heat Co. has started to drill on the Josephine Boyce farm. In Hackers Creek district, Lewis County, the Standard Oil & Gas Co. is drilling at 4,022 feet on the Vallard lot. In McClellan district, Doddridge County, the Elkhorn Oil & Gas Co. is due in the Gordon sand on the E. D. Tate farm.

Harrison County

In Ten Mile district, Harrison County, D. C. Loughery has started to drill on the John R. Davisson farm. In Simpson district, the Aspurin Oil Co. is due in the Gordon sand on the Eva J. Goodwin farm. In the same district, G. M. Lyons & Co. are due on the James C. Barnes farm. In Coal district, the Washington Gas Co. has shut down at 2,374 feet on the E. D. Fettro farm. In Ten Mile district, the Clarksburg Light & Heat Co. has made a location on the Jesse Hannah heirs' farm.

In Ravenwood district, Jackson County, M. E. Harman & Co. have started to drill on the Kanna Hutchinson farm. In Liberty district, Marshall County, the Manufacturers Light & Heat Co. is drilling on the W. J. Downey farm. In the same district, the Hope Natural Gas Co. is drilling deeper its test on the Jeggerson Miller farm.

In Carroll district, Lincoln County, the Ray Gas Co. has started to drill on the A. B. Barrett farm. In Washington district, the Harvard Gas Co. has started to drill on the J. M. Moore farm. In Sheridan district, H. H. Dial has made a location on the Clarence and E. Messinger farm.

On Meathouse Fork, New Milton district, Doddridge County, George Ahouse has the rig completed for a test on the Parsonage lot. In Pawpaw district, Marion County, Henry Tennant has started to drill on the B. and M. Poling farm. In Murphy district, Ritchie County, L. W. Cunningham & Co. are building a rig on the G. W. Haines farm. In the same district, the Hope Construction & Refining Co. has made a location on the Ina Ayers farm. In Troy district, Gilmer County, the Carnegie Natural Gas Co. has made a location on the Charles Despard farm.

Southwest Pennsylvania

In Greene district, Greene County, E. R. Clovis & Co. have a gasser in the Bayard sand at a second test on the I. G. Fordyce farm. In Pawpaw district, Marion County, the Hope Natural Gas Co. drilled deeper its test on the J. and A. Eddy farm. It is a gasser in the Bayard sand. In Morris Township, the Carnegie Natural Gas Co.'s test on the R. R. Baldwin farm is a duster in all

(Continued on Page 95)

MEN KNOWN IN OILDOM

Wesley G. Gish

Wesley G. Gish, chief geologist of the Sinclair Oil & Gas Company, is a geologist who at one time selected the newspaper business as a profession, and who worked 18 months in a daily newspaper plant.

Mr. Gish is a native of the Sunflower State, and was born at Abilene, Kans. He received his early education at the Abilene public schools, and upon graduation from the Abilene High School, entered the University of Nebraska where he enrolled in the Arts and Science course majoring in geology.

He graduated from Nebraska with an A. B. degree, and became associated with the firm of Stewart & Wright, consulting geologists. His work with that firm included extensive geological surveys in the Wyoming and Montana fields, notably in the Big Heart Basin and the Lewistown region.

After leaving Stewart & Wright, Mr. Gish became identified with the geological department of the White Eagle Oil & Refining Company, and later was made chief geologist for that concern. He was identified with the White Eagle company for many years, and left them to become chief geologist for the Sinclair Oil & Gas Company, whose geological department he has guided since January 1, 1925.

He has had a broad experience in the Rocky Mountain, Kansas, Oklahoma and Texas oil fields.

PERSONAL PARAGRAPHS

E. B. Reeser, president of the Barnsdall Corporation, is spending some time in New York.

* * *

Hugh Rodgers, drilling contractor of Tulsa, Okla., has been on a hunting trip in the wilds of Arkansas.

* * *

Watson Joyes, oil producer of Okmulgee, Okla., spent the holidays at his former home at Louisville, Ky.

* * *

H. B. Clark, a member of White, Weld & Company, has been elected a director of the Beacon Oil Company.

* * *

George C. Christman, oil operator, South Bend, Ind., made a short visit to Toledo and Cleveland, Ohio, the past week.

* * *

E. Gail Carpenter, land man for the Reiter-Foster Oil Corporation, of Tulsa, Okla., is a business visitor in San Angelo, Tex.

* * *

Hicks H. Allen, supervisor of air-gas lift in the Seminole Field for the Pure Oil Company, was formerly production engineer in Texas.

J. D. Whisenant, geologist for the California Company, Colorado, Tex., and Mrs. Whisenant, have returned from a visit in Duncan, Okla.

* * *

E. A. Redding, scout for the Roxana Petroleum Corporation in Pecos, has returned to his duties following a brief visit to Dallas, Tex.

* * *

R. S. Bynum, in charge of the McMan Oil & Gas Company's San Angelo, Tex., land office, spent the holidays in San Antonio, Tex.

* * *

George M. Tyler, scout for the Amerada Petroleum Corporation in West Texas, has returned following a visit to his home in Idabel, Okla.

* * *

James E. Dunn, of Amarillo, Tex., head of the Gibson Oil Company, was a business visitor in El Paso, and San Angelo, Tex., this week.

* * *

Harry L. Norris, chief scout of the Prairie Oil & Gas Company, has been confined to his home in Tulsa, Okla., from an attack of influenza.

* * *

F. R. Staley, chief chemist of the Texas Pacific Coal & Oil Company, has returned to his offices in Fort Worth, Tex., following an extended trip in Wyoming.

* * *

J. S. Cathern, rotary superintendent at Lake Charles, La., for the Pure Oil Company, is now in charge of its drilling in the Maracaibo Basin of Venezuela.

* * *

T. C. Towl, Pittsburgh, Pa., superintendent of the Southwest Pennsylvania Pipe Line Company, and Mrs. Towl, spent the holidays with his parents in New York City.

* * *

J. M. Greer, who has been superintendent in Arkansas for the Pure Oil Company, has been made general superintendent of production, succeeding J. M. Rush, resigned.

* * *

F. Fred Miles, of Lexington, Ky., was a recent visitor to Owensboro, Ky., where he looked over the Tri-County fields of Ohio, Daviess and McLean Counties, Kentucky.

* * *

W. F. Clark, of San Angelo, Tex., land man for the Delmar Oil Company, spent the Christmas holidays with his family in Bartlesville, Okla. He returned to West Texas this week.

* * *

H. R. Caldwell, land man for the Foster Oil Company, of Tulsa, Okla., has moved to San Angelo, Tex., from which point he will have charge of the land work in that district.

* * *

J. H. Kountz, formerly district manager of the Continental Supply Company for the Tulsa, Okla., district, is now in charge of the Tulsa branch of the Bartlesville Supply Company.

* * *

Harry Hines, independent operator of Wichita Falls, Tex., and H. S. Gordon of The Texas Company, returned to their North Texas headquarters this week from a motor trip to Kansas City, Mo.

* * *

Among some of the recent visitors to the Owensboro, Ky., Field are: J. T. Lewis, of Glasgow, Ky.: D. K. Holmes, of Fremont, Ohio; E. R. Brockaway, Marshall, Ill., and Hughie Melnotte, of Columbus, Ohio.

* * *

R. O. Lowrance, in charge of the Sinclair Oil & Gas Company's Abilene, Tex., land office, and M. H. Lowrance, connected with the same company's Fort Worth, Tex., land office, spent the holidays in Kansas.

* * *

D. L. Mahoney is now chief scout for the Sinclair Crude Oil Purchasing Company, with headquarters in Fort Worth, Tex. Before his transfer to Texas he represented Sinclair for six months in California.

* * *

O. O. Jensen, for the past seven years connected with the Kaw Steel Construction Company, is now associated with the Drane Tank Company, of Tulsa, Okla., distributors for the Butler Manufacturing Company, of Kansas City, Mo. Mr. Jensen will have charge of the steel building department and will have headquarters at Tulsa, Okla.

Sam Wells, in charge of the Roxana Petroleum Corporation's geological work in central Oklahoma, took occasion of the holidays to visit his family in Wisconsin, and has returned to his desk at Okmulgee, Okla.

* * *

Frank B. Carr, vice president of the Leland Truck Equipment Company, of Tulsa, Okla., has moved to Dallas, Tex., and will be located there, in the future. He will handle the business of the Leland company in the Texas fields.

* * *

H. G. Schneider and H. D. McCament, engineers of C. F. Braun & Company, Alhambra, Calif., are making a tour of Europe and will visit users of Braun equipment in England, the Continent, and Asia, before returning to the United States.

* * *

E. J. Marston, president, and J. R. Penn, chairman of the executive committee of the Texas Pacific Coal & Oil Company, have returned from New York after a brief visit and spent several days in the Fort Worth, Tex., office of the oil company.

* * *

Walter Fleming, Tulsa, Okla., vice president and general manager of the Mid-Kansas Oil Company, subsidiary of the Ohio Oil Company, stopped off in Pittsburgh, Pa., for a short time en route from Oil City, Pa., where he had been visiting, to Tulsa.

* * *

Mr. and Mrs. Clark A. Browning, of Toledo, Ohio, are sailing the forepart of the month for an extended sojourn in Nassau, Bahama Islands. Mr. Browning is one of the old-time operators in the Lima Field, and still a large holder of oil properties in Wood County.

* * *

Maurice A. Ockenden, M.I.Mech.E., F.G.S., is resigning his position as European manager of the Oil Well Supply Company, of Pittsburgh, Pa., after an association of 17 years. He has agreed to continue to act in an advisory capacity. Ashley Carter has been appointed his successor.

* * *

C. Paul Harrington, special agent for the Columbian Steel Tank Company, of Kansas City, Mo., visited in Casper, Wyo., while en route home from Great Falls, Mont., where he had attended the annual meeting of Montana Chapter of the Rocky Mountain Oil and Gas Association.

* * *

Jerry Chestnut, land man for the Republic Production Company, will be transferred January 15 from the main office at Dallas, Tex., to the West Texas headquarters at San Angelo. C. A. Russell, geologist and land man for the Republic, is in charge of this territory.

* * *

Albert Brown, after a service of over 30 years with the Oil Well Supply Company and its subsidiary, the Oil Well Supply Company of California, retired from the position of vice president and general manager of the latter company December 31. Mr. Brown will, however, continue with the company as a director and act in an advisory capacity.

* * *

S. W. Day and B. F. Fisher, field superintendent and superintendent of main line stations, respectively, of the Standard Pipe Line Company, were elected vice presidents of the organization by the board of directors. J. W. Davis, chief oil dispatcher, was elected a member of the board to succeed A. Clark Bedford. F. Ray McGrew is president of the company and Hugh Austermel, secretary.

* * *

David K. Yang, teacher of physics in Yenching University, Pekin, China, and now taking postgraduate work in Columbia University, New York, has returned to the latter city, after visiting points of interest in the Mid-Continent oil fields as the guest of Dr. B. R. Stephenson, of the research department of the Mariand Oil Company, Ponca City, Okla. Prior to 1924 Professor Yang and Doctor Stephenson taught together in Union Medical College, Pekin, which is supported by the Rockefeller Foundation. While entertained by Doctor Stephenson over the holidays Doctor Yang inspected the Burbank oil field, the Bartlesville station of the United States Bureau of Mines, the Marland refinery and oil fields near Ponca City. He gave addresses before the Rotary Club in Ponca City, the Young Men's Business Club there and various churches, Sunday schools and civic organizations.

"OILWELL"
OIL BATH ROTARY SWIVEL

All working parts operate in a bath of oil, which eliminates the constant care of lubrication.

The swivel will not bind in operation.

No sand, grit, or other substances can come in contact with the moving parts, because all working parts are completely enclosed. This insures long life to the parts.

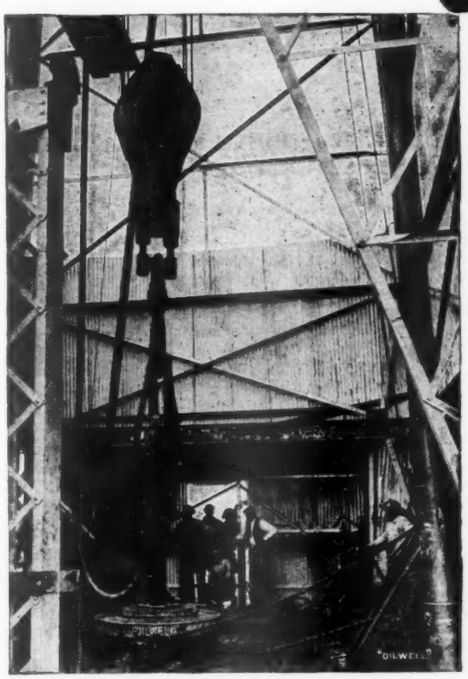
All glands are packed and adjusted from the outside, without removing any part of the swivel.

Note the bail rest which holds the bail out at an angle of approximately 45°, thus enabling the hook to be connected or disconnected without danger or difficulty.

One "OILWELL" Oil Bath Rotary Swivel will do the work of two ordinary swivels, because you can use it continuously. There is no need for an extra swivel for emergencies.

Send for special Bulletin, or inquire at any of our 100 Branches.

"OILWELL" Rotary Outfits, being made up of component parts each of which is a leader in its line, are vastly superior to any other outfits.



"OILWELL" Oil Bath Swivel in the California Field.

Another "OILWELL" Oil Bath Swivel in the California Field. Drilling below 6,000 feet.

OIL WELL SUPPLY CO.

NEW YORK—LOS ANGELES—PITTSBURGH, U.S.A.—SAN FRANCISCO—TAMPICO—LONDON

WORLD'S OLDEST AND LARGEST MANUFACTURERS OF OIL FIELD EQUIPMENT

Natural Gas Developments

ASKS GAS FRANCHISE FROM NEW ORLEANS

NEW ORLEANS, La., Jan. 7.—Application from an unknown concern for a franchise to pipe natural gas to New Orleans and distribute it to domestic and industrial consumers has been placed before Mayor Arthur O'Keefe and the city commission council.

The application was filed in the name of Augustus G. Williams, who is recorder of mortgages. Mr. Williams did not disclose his principals, but declared he was ready to "meet any reasonable conditions and guarantees" the commission council may require in connection with the franchise if it should be granted.

The franchise application schedules the rates to be charged for natural gas for all classes of consumers.

For domestic, i.e., for purely household use, these rates range from 55 to 80 cents per 1,000 cubic feet on monthly bills; the scale would be 80 cents for the first 1,000 feet consumed in any month; 70 cents for the next 1,000 feet; 60 cents for the third 1,000 feet, and all in excess of 3,000 feet at 55 cents per 1,000.

A service charge of 50 cents per month would be required, and the minimum per meter per month would be $1.

The franchise application offers natural gas to the five classes of industrial consumers at the following schedules:

1. Internal combustion engines, 50 cents down to 30 cents per 1,000 cubic feet.
2. Gas as fuel under boilers in central steam heating plants, used in winter only, 55 cents down to 25 cents.
3. Gas for steam or hot water boilers (except in residences) in industries, day consumption only, 50 cents down to 25 cents per 1,000 feet.
4. Gas as fuel under steam boilers for power purposes, in plants operated in day time only, 50 cents down to 23 cents per 1,000 feet.
5. Gas as fuel under steam boilers for power purposes, and for heating purposes in or under steam and hot water boilers (except in residences) in industrial plants regularly operated during day and night, 50 cents down to 18 cents per 1,000 feet.

TWO HELIUM PLANTS FOR TEXAS IN BILL

WASHINGTON, D. C., Jan. 7.—Expenditure of $2,720,000 for the production of helium in two plants in Texas is called for in the appropriation bill introduced in the House. This includes the cost of constructing the proposed new plant at Amarillo and discloses that negotiations are under way for acquisition through lease of a 37,000-acre tract in Potter County where the helium content is 1¾ per cent. The helium content in the Amarillo Field is scarcely more than 1 per cent.

In his testimony before the appropriation committee, Dr. R. A. Cattell, chief of the helium division in the Bureau of Mines, stated that the rock pressure in the Potter County Field is 725 pounds as against but 178 pounds in the Amarillo Field.

It is indicated by Doctor Cattell that the Nocona pipe line for which Congress made a large appropriation last year will not be built as so much of the gas in that field has been wasted. Instead, the Government plans to continue operation of the Fort Worth plant with supplies obtained from the Petrolia Field and will extend the lease when it expires in 1929.

The future in this field does not look promising to Doctor Cattell, there being too much variation in the supply. Whereas formerly the flow was 30,000,000 feet per day this has now been cut to 2,500,000 feet, and this is sufficient for not more than 500,000 or 600,000 feet of helium, whereas the requirements of the Army and Navy call for at least 1,000,000 feet.

Although the Government has negotiated for construction of a new plant at Amarillo, conditions there are far from satisfactory. It is declared that the pipe lines now radiating out of the Amarillo plant have reduced the rock pressure and curtails the amount of gas which would be available for government use.

The plant to be erected there will cost approximately $700,000. On account of these facts, the Government became interested in the possibilities in the Potter County Field and is now negotiating leases with owners, the work having been done by the United States Attorney at Fort Worth.

Up to this time $285,000 has been obligated and it will require $225,000 to conclude arrangements. The amount asked for in the operation of the Fort Worth plant is $439,000, which is an increase of $74,000 over appropriations for this purpose during the current year. The production of helium for 1927 was estimated by Doctor Cattell as 6,330,054 feet, a reduction of approximately 3,000,000 feet.

GAS LINE TO HELENA DECLARED FEASIBLE

A natural gas line from the Kevin-Sunburst Field to Helena, Butte, and Anaconda is possible according to a statement credited to R. J. Lindsay, vice president of the Hope Engineering Co., which is laying a line from the field to Great Falls.

"I do not believe such a line can be constructed to the three cities named inside of a year," Mr. Lindsay is quoted. "The project is entirely feasible, however, and the sooner it comes the sooner will a corresponding benefit accrue to those interested in development of the field."

STORY OF NATURAL GAS IS TOLD TO SCHOOLS

What both the natural gas industry and public school authorities in West Virginia regard as significant results have been obtained through the distribution by the utilities through the public schools of literature describing development of the State's natural resources. Organized distribution of this literature through the Public Utilities Association of West Virginia developed after the first letter to public school principals and requests for more than 5,000 of these pamphlets.

The natural gas industry is represented by a textbook, "The Story of Natural Gas." This publication contains the story of natural gas in a series of 108 questions and answers. The pamphlet is divided into sections dealing with the definition and origin of natural gas, its discovery, its geological history, its properties, statistics concerning the industry, its methods of transmission, means of distribution, gas measurement, combustion and the principal uses of the fuel. At the end of the book is an elaborately prepared bibliography which points out to the students where various books dealing with specific subjects under the general head of "natural gas" may be obtained. Noted after the title on the front cover of the book is the information that it has been prepared as a textbook for the public schools of West Virginia. The suggestion that this information about the natural gas industry being distributed throughout West Virginia came originally from the United Fuel Gas Co., which has its headquarters at Charleston, W. Va., and is a part of the Columbia Gas & Electric System. Conference with officials of the Public Utilities Association of West Virginia developed a ready willingess of that organization to co-operate in supplying the school children of West Virginia with information regarding one of the State's most valuable and important natural resources.

The Public Utility Association and the United Fuel Gas Co., communicating with the superintendent of public instruction of West Virginia obtained from that executive consent for the distribution of the pamphlets and also secured an indorsement of the use of the book as an auxiliary textbook in certain of the school courses.

The next step included the sending of a letter to all school principals, indicating that the natural gas pamphlet with other publications on industrial development were available for the use of school children in the State. A post card inclosed requested the principal to indicate his selection and the number of books desired. The following day's mail brought requests for 3,300 books. In two days this number had increased to 4,800, and a day or two following had passed the 5,000 mark. The list of requests is still growing.

Probably one of the strongest recommendations this program could have had came from the state supervisor of high schools, who wrote: "From my personal experience and from the examination of the publication named, I am glad to recommend this material to high school principals for supplementary use in science and social science."

Already many repeat orders had been received at the point of distribution for this textbook from many teachers who had originally only asked for a sample copy.

NEW YORK USES FOURTH OF MANUFACTURED GAS

One hundred and ten billion feet of manufactured gas was used in the homes and work places of the Empire State during 1927. This is equal to approximately one-fourth of the total for the entire country, says the New York State Committee on Public Utility Information.

"Nearly three million gas meters are now installed in New York State, and new meters are being added at the rate of 10,000 a month," says the committee.

The predicted total for 1927 is based upon production reports from manufactured gas utility companies throughout the State. Of this total, 25 per cent will have been used in various industrial heating operations, which include processes as widely different as pretzel baking and glass making. The use of gas as industrial fuel is largely a development of the last 25 years, during which it has increased steadily at the rate of about 30 per cent a year.

Three-fourths of the State's enormous supply of gas is used in homes, restaurants, hotels and other places for cooking, water heating and space heating. It is estimated that in all towns of 10,000 or more in New York 95 per cent of the homes use gas for one or more purposes, and that three-fourths of the food prepared in the State is now cooked on gas ranges, at an average consumption of gas of less than 100 feet a day per family.

Tabulated records of gas consumption made at four-year intervals since 1910 show both a steady increase in the number of gas users and in the per capita yearly use, which has increased from 6,500 feet a year in 1910 to approximately 10,000 feet this year.

Of the total of 110,000,000,000 feet of manufactured gas supplied to the people of the Empire State in 1927, less than 1 per cent has been supplied by municipal plants, of which there is one in operation at Bath.

RECORD CONSUMPTION OF GAS AT SAN ANTONIO

SAN ANTONIO, Tex., Jan. 7.—The extremely cold weather broke two records of the gas department of the San Antonio Public Service Co. when it prompted San Antonians to draw on it for the greatest amount of gas during any one-hour period and the largest totals for a single day.

Saturday gas consumers used 29,447,000 feet of gas during the day, and Sunday, between 10 and 11 a. m., a new peak record was set when 1,925,000 feet were used in a single hour, according to D. W. Flowers, general superintendent.

Had it not been Sunday, the record for a full day's total would have been broken, since none of the industries drew on the supply, he said. Likewise, had Saturday not been a half holiday, the output on that day would have been greater.

The supply was entirely adequate to care for the unusual demand and few complaints were received of insufficient pressure and these came from the outlying districts.

"It was the first time since we hitched our plant up to the natural gas supply at Three Rivers and near Laredo that we have had an opportunity to put our gas system to an acid test," he said. "Until the cold snap came along we were not sure that our system would work just right in an emergency, but we are well pleased, although, of course, there were a few weak spots which can be eliminated before the next unusual wintry spell."

Maximum loads of approximately 29,000,000 feet on each of five successive days just before Christmas also set a new record, it being the first time in the history of the local company's six years' experience with natural gas that such a large continuous demand has been made on it.

The public service company, in addition to getting gas out of the Three Rivers and Laredo Fields, takes some out of the Medina Field, and has an arrangement with the Southern Natural Gas Co. to take its output at Gas Ridge when there is a demand for it.

WEISSER GAS LINE FURNISHES PAOLA GAS

PAOLA, Kans., Jan. 7.—The Weisser gas line is completed and is furnishing Paola with all the g it is using and Ossawatomie will be hooked on within a few days. This gives a market for the gas being produced in the east half of Miami County. All this gas is the result of drilling that has taken place in and around Paola within the past year and there is a posibility of sufficient additional production for industrial purposes.

The Miller line is now furnishing the state hospital at Ossawatomie with a greater share of the gas they use and this fuel is fast replacing coal for all purposes in this institution. Miller also got a good gas well in the NE of Section 36-17-23.

The Paola town lot campaign is starting again. There are two rigs at work in the south part of the city and one rig on the Patterson tract in the northwest part of town.

SULPHUR NOW HAS GAS

Sulphur, Okla., is now enjoying natural gas service for the first time, the Community Natural Gas Co., which holds the franchise, having completed its distribution system. The supply comes from the Chickasha fields. The company has also recently installed gas distribution service at Pauls Valley and Purcell.

KEROTESTS
NEVER FAIL IN EMERGENCIES LIKE THIS

Every oil man knows what makes a wild well wild. It is usually because the operator commits the mistake of making his well the testing laboratory for an untried drilling valve which fails at that crucial moment when the well comes in gushing like a geyser.

This can't happen to a Kerotest. Every valve is subjected to the famous Kerosene test under maximum test pressure—then inspected and certified by the Pittsburgh Testing Laboratory and a certificate of such test issued to every purchaser.

Kerotests are the only certified drilling valves made to demonstrate their reliability under such a severe test *before* going into the oil fields.

Hundreds of the world's wildest wells are today, safely controlled with Kerotests. Why not avail yourself of the advantages of this tried, tested and perfected valve on your wells. Any of the distributors below will be glad to supply you.

Do you have a copy of the new Kerotest Catalogue showing the complete line?

Kerotest Manufacturing Company

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KERO TEST

EQUIPMENT AND SUPPLIES

NORQUIST PRESIDENT OF BUTLER MFG. CO.

E. E. Norquist has been elected president of the Butler Manufacturing Co., Kansas City, Mo, and Charles R. Butler, former president, made chairman of the board of directors.

Other officers elected: C. C. Crouch, vice president and manager of the Minneapolis office; Williams A. Knapp, vice president; Roy S. Kemp, vice president and credit manager; F. A. Rufi, secretary; Oscar D. Nelson, treasurer; Victor C. Norquist, plant engineer; John G. Fahlstrom, Kansas City plant superintendent; William C. Glover, manager Glover division; G. C. Speakman and H. L. Alleman, assistant managers Glover division; R. G. Waring, assistant treasurer; H. D. Baillie, assistant treasurer; E. L. Snyder, assistant Minneapolis plant superintendent; John Nelson, Minneapolis plant superintendent.

The board of directors: Charles R. Butler, C. C. Crouch, F. A. Rufi, William C. Glover, E. E. Norquist, William A. Knapp, O. D. Nelson, Roy S. Kemp.

SPECIAL ALLOY MADE TO COMBAT CORROSION

Sweetaloy still plugs, made of a special nickel-chromium-iron alloy, have been in use for over two years with results reported satisfactory. This alloy was developed by the William J. Sweet Foundry Co., Irvington, N. J., primarily for the purpose of casting still plugs, bearing in mind the corrosive conditions, in addition to the element of strength and temperature.

A further development has been the manufacture of a return bend fitting of a special chromium alloy as a companion product to Sweetaloy plugs. The element of expansion was, of course, an important one to be considered and this has been worked out as has the element of corrosion.

Sweetaloy thermocouple wells are available in all sizes. Chromium predominates in all of these alloys. This metal has proved of vital importance in the combatng of corrosion in the oil refinery.

"SALES-SERVICE" ORGANIZED

Paul Reid has organized in Houston, Tex., a unique service for oil field equipment manufacturers and jobbers which he calls "Sales-Service." The purpose is to supply personal contact between the manufacturer, jobber, and consumer, the arrangement calling for direct representation and co-operation, together with personal calls upon jobbers, supply companies, and oil companies. Mr. Reid claims firms located so far away from the Gulf Coast territory they find it impossible to maintain close contact with the trade in that area are especially interested in the new service.

GRAVER CORP. IN FORT WORTH

The Graver Corp. has established Texas headquarters in the Petroleum Building, Fort Worth. The office formerly conducted in Houston has been discontinued. The Fort Worth office, which was opened January 1, is a full branch office equipped to handle the complete Graver line. T. C. Crosby, formerly of Graver's Tulsa office, handles sales of tanks and steel-plate equipment. E. H. Clark, of the former Houston office, handles sales of the Jenkins cracking process and other refinery equipment. C. J. Hutcheson, from the home office in East Chicago, Ind., is in charge of water-softening and filtering equipment.

BETTER YEAR EXPECTED IN STEEL; LARGER DEMAND FOR TUBULAR GOODS

By B. E. V. Luty

PITTSBURGH, Pa., Jan. 9.—The new year is too young for any general trends of importance to have developed. Transaction of business has been retarded as usual by various classes of annual work, including inventory taking.

Neither in the last week of the old year nor in the first week of the new year were steel mill operations materially reduced. The two holidays fell at the best time in the week, making a minimum of interruption. Production of steel in December was at approximately the rate that had been so steadily maintained in the five preceding months, since July 1, at a shade over two-thirds of the full theoretical capacity for the production of steel. As finishing capacity regularly exceeds steel making capacity, various finishing branches ran at less than two-thirds of their really full capacity. The wire, pipe, sheet and tin plate mills were in this category.

Pipe mills had a poor year in 1927, though perhaps not altogether as poor as was expected. Easily they can have a better year in 1928 in point of tonnage. They start out with prices 5 per cent lower on standard pipe and 10 per cent lower on oil country goods, than prevailed one year ago, but still the prices are no doubt quite profitable. Some finishing lines are in poor shape as to prices, particularly the wire mills and sheet mills. Demand for standard pipe may easily be better than it was in 1927, and it was not bad at all in that year. Oil and gas field consumption of tubular goods may readily increase somewhat, though the pipe mills cannot have any definite expectations that at any time the exceptional demand of either 1923 or 1926 will be repeated.

Sheet Prices

The sheet mills entered the new year with nearly 1,000,000 net tons of obligations on books. This was partly a result of the move to advance prices, in black sheets from about 2.75 cents to 2.90 cents and in galvanized sheets from about 3.60 cents to 3.75 cents, with a firming up in blue annealed sheets to 2.10 cents and the imposition of a $2 a ton extra on sheets 40 inches and wider. There was no move to advance automobile sheets above their 4.00-cent level. A great deal of business was driven in by the move, except naturally in automobile sheets, but at the same time sheet consumers must have been expecting very heavy operations during the present quarter. Operating substantially full, capacity on a practical basis may be estimated at about 1,300,000 net tons per quarter, so that considering the small amount of automobile sheet business on books it would seem the sheet mills are practically sold up on the other grades, and all at the low prices recently ruling, which the mills apparently set out to improve upon. The incentive to accumulate a backlog first proved irresistible. Some mills would have held back for the advanced prices, but other mills would thereupon have taken customers away from them. Even now the sheet market is not quotable at the advanced prices as minimum, but at ranges as formerly in black and galvanized, the market being 2.10 cents on blue annealed, 2.75 to 2.90 cents on black, 3.60 to 3.75 cents on galvanized and 4.00 cents on automobile sheets, f.o.b. mill Pittsburgh district, with Chicago basing prices generally $2 a ton higher.

Bars Shapes and Plates

In bars, shapes and plates on the other hand the advance of a few weeks ago to 1.80 cents Pittsburgh is fully the market, and in a very few weeks the mills will have completed filling specifications at lower prices, filed on the fourth quarter contracts which have just expired. A further advance, to 1.85 cents, is in prospect.

Merchant operators of the Connellsville region have reduced wages as expected, to the November, 1917, scale, or 15 to 20 per cent reduction. This is merely reinstating the scale long paid, to November 1, 1926, when wages were advanced sharply on account of high prices for coal due to the British coal strike. The coke market is not affected as it was well known for several weeks the wage reduction was going to be made.

BACK FROM EUROPEAN TOUR

J. B. Fisher, chief engineer of the Waukesha Motor Co., Waukesha, Wis., has returned from an extended tour of Great Britain and the Continent in company with President H. L. Horning. The two visited leading automotive plants in England, France, Belgium, Germany and Italy, investigating advanced ideas in designs and methods in recent European development. In England they conferred with the eminent British engineer, Harry R. Ricardo. Mr. Horning expected to return from Europe in time for the National Automobile Show in New York.

NEW DISTRIBUTORS ANNOUNCED

The American Cable Co announces four new distributors of Crescent and Tru-Lay wire lines at strategic points in the Mid-Continent oil field. They are Atlas Supply Co., Muskogee, Okla., and Fort Worth, Tex.; Marion Machine, Foundry & Supply Co., Tulsa, Okla.; Farley Machine Works Co., Arkansas City, Kans., and Mid-Continent Supply Co., Houston, Tex. In addition to these new distributors, sales representatives are located in Tulsa, Okla., where the Mid-Continent district office is located; Ponca City, Okla., and Fort Worth, Tex.

VAN HORNE GOES TO MOLINE

The Lincoln Electric Co., Cleveland, Ohio, announces the transfer of John Van Horne from Atlanta, Ga., to Moline, Ill., where he will be located at 514½ Fifteenth Street, covering the Tri-Cities on the sale of "Linc-Weld" motors and "Stable-Arc" welders. He will operate under the direction of R. D. Malm, western manager, in Chicago.

53 AT AXELSON DINNER

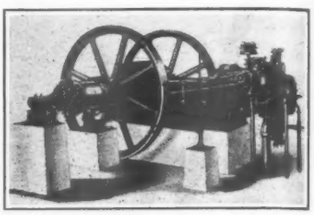
Fifty-three members of the Axelson Machine Co. attended the company's annual dinner in the Biltmore Hotel, Los Angeles. Clyde Ellwood, general sales manager, was toastmaster. Talks were given by James C. Foley; Jule C. Axelson, president; and H. D. Young, president of the Employes' Welfare Association. Bonus checks were distributed.

OPENS CHICAGO OFFICE

The Hendrick Manufacturing Co., Carbondale, Pa., manufacturers of grating, stair-treads, and grids, has opened an office in the Railway Exchange Building, Chicago, in charge of Lon Sloan.

FOUR-CYCLE ENGINE FOR OIL FIELD USE

In recent years the scarcity of gas in some regions has created a demand for a reliable four-cycle gas engine for oil field service. While fuel economy in these locations is desired, the power plant must have at the same time, simplicity, ruggedness and long-lived dependability.



The engineers of the Bessemer Gas Engine Co. several years ago set out to perfect a simple, sturdy, efficient four-cycle engine which would be ready for the oil industry when the industry was ready for such a power plant.

The new Bessemer four-cycle oil field engine's general design and construction are similar to those of the Bessemer two-cycle oil field engine. It is simple, has a high mechanical efficiency, is oversize and overstrength throughout and the feature of accessibility has been retained.

In designing this engine, the engineers kept in mind the feature of interchangeability of parts. In order to keep down users' spare parts stock, the engine was so designed that the crossheads, main frames, flywheels, main bearings and connection rods of the four-cycle engine are interchangeable with the same parts of the two-cycle Bessemers. The power cylinders, valves, valve gear, mixing valve and governor, however, have been designed specifically to adapt the engine to four-cycle operation.

The bed plate is of the enclosed type. The crankcase is entirely enclosed, but tight-fitting removable covers permit ready access to all moving parts. The main bearings are adjustable and oversize. The piston is of the open trunk type, fitted with four rings. The piston rod is pressed into the piston and peened over, and both piston and rod may be removed from the cylinder merely by taking off the power cylinder head. The power cylinder is a one-piece casting poured from a special gray iron mixture. The connecting rod is of the marine type made from an open-hearth steel forging. The crankshaft is extra large and is fitted with counter weights. The crosshead consists of a steel casting fitted with adjustable bronze shoes. Both inlet and exhaust valves are mounted in cages, the exhaust valve cage being completely water jacketed. The valves are operated by rockers fitted with rollers with push rods which receive their motion from a single cam actuating the rockers. The mixing valve is mounted on the side of the cylinder and is operated from the governor by a short lever. The governor is of the fly ball type and is driven from the crank shaft by a belt A safety device stops the engine in case the governor belt should break.

TRADE LITERATURE RECEIVED

MacGregor & Harcourt, St. Louis, are distributing a circular describing the MacGregor self-sealing and self-lubricating rotary valve.

A catalog published by Jensen Brothers Manufacturing Co., Coffeyville, Kans., contains illustrations and specifications of Jensen straight lift jacks, with other information concerning them.

The reputation of the Moore Tubular Steel Derrick is built on its strength, its long life, its ease of erection and convenience in handling. For twenty years it has gained the steadily increasing confidence of oil men because its design, together with the proper selection of materials for its fabrication, result in a structure which can be depended upon under all circumstances.

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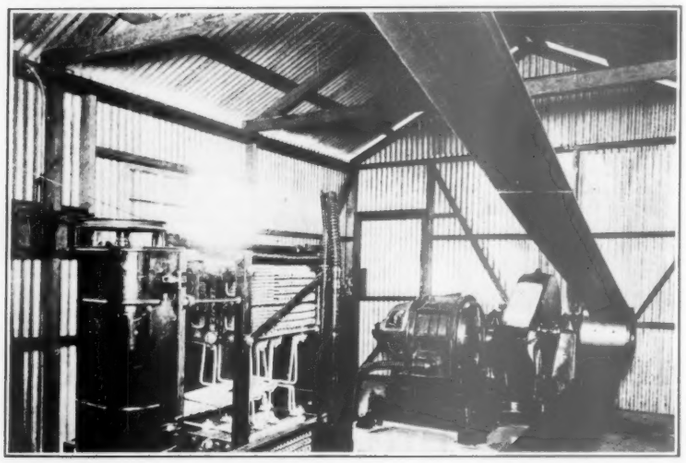
Electricity in the Petroleum Industry

Various Uses Listed With Types of Equipment Particularly Suitable for Work Desired. Industries Closely Allied

By R. H. Rogers
Industrial Engineering Department, General Electric Co.

The oil industry and its effects extend over all the continents and seas and from the uttermost heights to the uttermost depths so far explored by man. Electric power is likewise widespread, for wherever there is industry there is likely to be electricity. It is, therefore, to be expected that the oil industry, throughout its intricacies of production, segregation, transportation, and sales, has made many beneficial alliances with electricity. On the other hand, the electrical industry relies upon and is a major customer for petroleum products. Briefly enumerated, the principal electrical uses are: fuel oil for engine and turbine power stations; insulating oils for transformers, switches, cables, and control devices; lubrication for millions of bearings; carbon brushes wherever there are collector rings or commutators, arc light carbons, carbon contacts, and carbon black in rubber; solvents used in the manufacture of insulating compounds; paraffin for impregnating materials; and numerous other ways in which petroleum products are utilized in electrical work.



Type OMT-336 35-15-H.P. 440-V. two-speed oil well pumping motor equipment with silent chain drive on lease of the Associated Oil Co. at Santa Fe Springs, Calif.

Although the use of electricity in the petroleum field has made great advances in the past two years, the oil industry as a whole is the least electrified, with the exception of agriculture, of any of our major industries. However, electric power is indirectly of inestimable value to the oil industry, through its general and often exclusive use in the production of the endless variety and tremendous quantities of material and equipment required. The greatest user of electric power in point of horsepower hours is the steel industry. This fact makes available better steel products at lower prices, and it facilitates prompt deliveries, an item of vital importance in the field under discussion. In point of per cent of total power used, the undoubted leader is the automotive industry, which is practically 100 per cent electrified. Automobiles, trucks, and tractors, so indispensable and used so lavishly in all phases of the "oil business," are, to the last washer and cotter pin, produced by electric power. Other contributing industries utilizing electric power to a far greater extent than is the case with oil are those producing lumber, rubber, cement, machinery, cable, casing, pipe, tubing, and rods, and electrical equipment.

Low Per Cent of Total Power

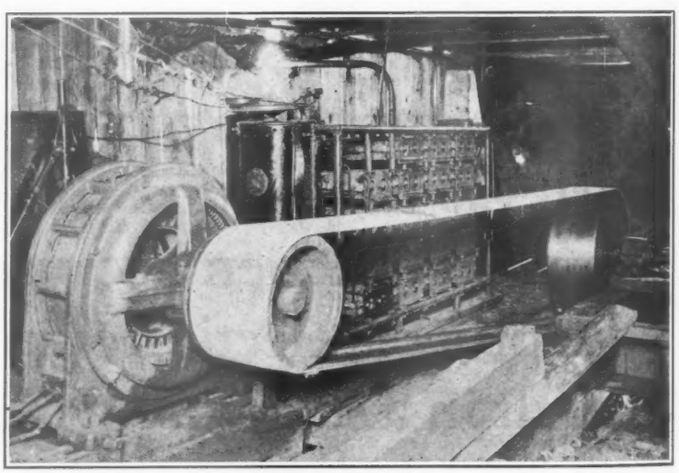
While the amount of electric power now used in the oil industry is great in the aggregate, it is very low in per cent of total power used, but if it follows the precedent of practically all other great industries, the more thorough the penetration of cold calculation into costs, the more general will become the use of electric power. The present status is the result of certain features peculiar to the industry. They are: the geographic spread, much of the preliminary work falling outside of existing "high line" networks; the presence of fuel of low first cost, though much fuel energy is converted to electricity before application; the rapidity with which the industry has grown and to the peculiar economic situations that have arisen, particularly during the earlier development.

An outstanding feature of this new electrical development is the intense and well-directed energy that has marked the extension of electric service into the fields of oil activities. Public service organizations have broken all records in the way of extensions, in the rapidity in which load has been connected and in the quality of service rendered under the most trying circumstances. Most industries are concentrated in nature, new plants or extensions are contemplated and under construction for many months, so that facilities for producing and distributing the required power may be undertaken in a leisurely manner. Furthermore, industries in general are in highly developed communities where trunk power lines already exist and where transportation facilities are of the best. By contrast, the oil industry is often beset by hectic conditions, is built up in more or less remote locations and in difficult terrain. In every case, from executives to wire splicers, the personnel of the public service organizations have become imbued with the spirit of the "oil business," so that it has been said with truth that "clock and calendar have been utterly disregarded." Seemingly impossible schedules have been met by almost superhuman efforts, possible only where every man in the organization is on his toes to make electric service available where and when wanted. In view of these recent performances, no operator need hesitate about electrifying, for wherever there is a demand it is certain that service of a high quality can be obtained.

Power Stations and Motors

Broadly speaking, electric power is successful because work can be done at a lower overall cost and more work can be done with given facilities than would otherwise be possible. These results are obtained by using fuel many times more efficiently in giant stations than is possible in isolated units and by utilizing the electric motor, which is a simple device which has only to convert to mechanical energy the electric energy which is delivered to it ready made. The motor is a lightweight unit, since the bulk of the work is done by distant massive boiler and turbine or water wheel units in which the power user is only remotely interested. He does not have to move them from place to place or furnish heavy foundations for them. Neither does he have to supply them with fuel or water. The motor, being only a sort of handle for the power plant, is freely started and stopped, reversed, or varied as to speed without having to rely upon heavy mechanical adjuncts. The parts of a motor are so few, the rotating elements are so simple, and because none of its parts is subjected to the destructive action of fire, steam, or water, it is a power unit with long life and low upkeep. Power bills are a tangible measure of operating cost, for there are neither scattered bills for repair parts hard to allocate, nor losses from shutdowns or reduced production still harder to allocate. The motor acts as a simple coupling between the power station and the driven machine.

In practically every one of the older industries, the utilization of electric power has advanced by certain fairly well defined stages. First, existing prime movers were replaced by motors, while mechanical transmission of power was retained, together with the necessity of mechanically raising or lowering the speed at the various machines, as well as in their component parts. Second, the driven groups were reduced to smaller groups, or motors were put on individual machines. This reduced mechanical upkeep and increased production with lowered power cost. Third, new types of machines were devised to take full advantage of the peculiar characteristics of motor drive. This is exemplified, for instance, in wood working where the modern practice is to motor every cutting or smoothing tool just where the work is being done and nowhere else. In other words, as many as nine high-speed motors may be used on one machine, each mounted directly on the shaft that is doing the work. All intermediate shafts, belts, gears, and bearings are eliminated, and by means of the higher speeds the production is greatly increased, the work is accomplished in less space and mechanical upkeep in cents per 1,000 feet is reduced almost to the vanishing point. Another good example is the centrifugal pump, which was promoted largely by its being adapted to electric drive, and such pumps are almost universally designed for standard motor speeds.

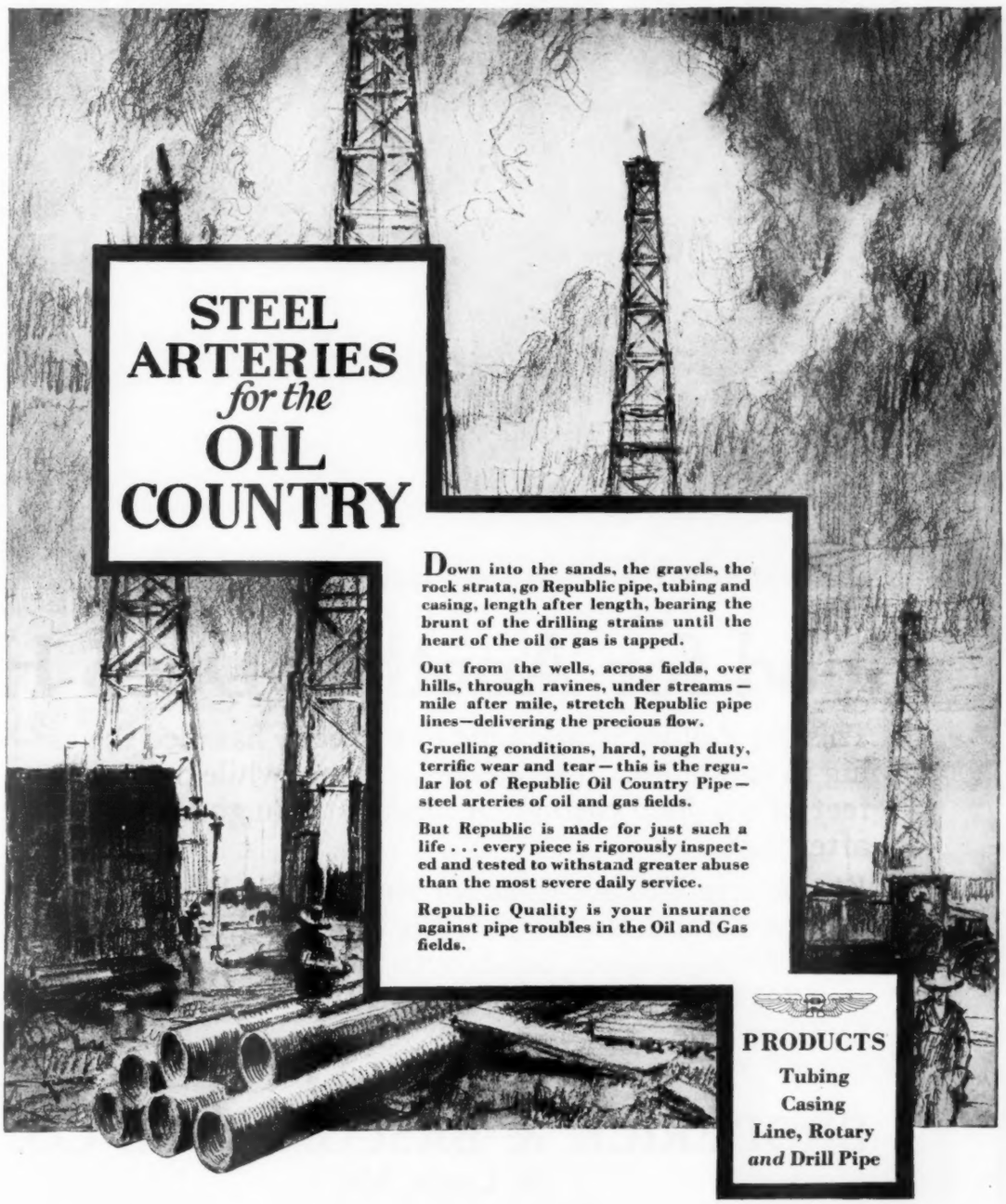


Type 1-14 10-pole 75-H.P. 720-R.P.M. form M-440V motor with control equipment for cable tool drilling at Rollestone well of the Roland Oil Co., near Longmont, Colo. The first electrically drilled oil well in Colorado.

Use in Refineries

Fortunately the oil industry is able to profit by the experiences of other industries; and, like the automotive industry, it can step, almost at once, into the most advantageous use of motors. Especially is this true in refineries where all mechanical operations are well adapted to electric drive. The requirements for process steam makes electric power all the more fitting here, for, following the practice in many other industries, turbine generators are used as pressure reducing valves. Steam is passed directly from the boilers for high pressure requirements, while lower pressure needs are supplied by "bleeding" steam from a suitable stage of the turbine, or the steam is exhausted at high back pressure for the low-pressure steam supply. By this latter method, a turbine generator can be operated on 125 pounds gauge with exhaust at 18 pounds gauge, deducting 12 per cent of the heat units from the steam for power and leaving 88 per cent to go into process work. In other words, a kilowatt hour can be produced from 8,000 B.t.u. Such systems are conducive to economical heat balances, while making available the advantages of electric drive for hundreds of varied operations scattered over a very large area. Oil and gas engines are often used in private plants to convert all or part of their power into electricity. In some cases, only enough electricity is generated to operate the auxiliaries necessary for the engine. "High line" power has a decided advantage over private plant power in the greater security against "outages." This factor comes from the tieing-in of a number of stations, each of a size and character superior to most private plants. Further security is obtained by looping the transmission lines so that power is fed into the active areas from at least two ways. By means of sectionalizing

(Continued on Page 96)



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Down into the sands, the gravels, the rock strata, go Republic pipe, tubing and casing, length after length, bearing the brunt of the drilling strains until the heart of the oil or gas is tapped.

Out from the wells, across fields, over hills, through ravines, under streams—mile after mile, stretch Republic pipe lines—delivering the precious flow.

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But Republic is made for just such a life . . . every piece is rigorously inspected and tested to withstand greater abuse than the most severe daily service.

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Good for Another Deep Hole

This old Yellow Strand Line has already handled the casing in two holes. It stretched 24 inches while pulling 2200 feet of 6¼-inch casing. And was still in good condition after that.

Elastic-strength accounts for the remarkable vitality of Yellow Strand Rotary Drilling Line. Flexible, too; bears up under high-speed bends over sheaves and drum. Time saved is money saved. Specify Yellow Strand Rotary Drilling Line.

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ELECTRIC GEOPHYSICAL METHOD USED IN SEARCH FOR STRUCTURE

By Stefan von Croy
Houston, Texas

Geophysical investigations cannot take the place of deep drilling, but they can and are intended to point to the best localities for starting such operations, in order to avoid futile drilling. Their economic necessity and sole aim and object is to indicate deposits and not to establish their presence.

In practice, so far as utility and results are concerned, the following four methods have proved to give the most satisfaction:

1. Measurements of density, specific gravity or gravitation and their local changes. (Torsion balance.)
2. Magnetic measurements in horizontal and vertical directions and their intensity. (Magnetometer.)
3. Conductivity or reflectivity measurements of the propagation of artificially produced explosive waves. (Seismograph.)
4. Conductivity or resistance measurements to artificially produced electric currents and their electro-magnetic field. (Elbof.)

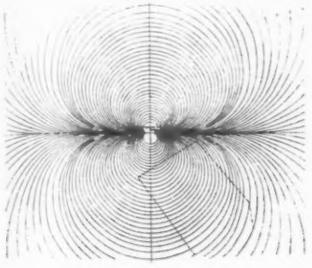

Figure 1.

Regarding the electric method (Elbof) the relative values of substances indicates the way by which the composition of subterranean formations are diagnosed and determined with a fair degree of accuracy. In the case of oil, from numerous laboratory experiments and from practical investigations, the enormous difference of conductivity as between oil-bearing strata and surrounding strata could be noted. The resistance of electric current of shale, clay, marl, lime, chalk and sand, etc., is relatively little compared to oil-bearing strata.

Theoretical Principle

The theoretical principle is set out as follows: If by means of two or more earth contacts, used as electrodes, a fairly strong electric current is passed into and through the earth, then this current in a perfectly homogeneous ground (of perfectly even conductivity) will follow underground a course which when plotted, has some similarity to that of the magnetic field. In Figure 1 is reproduced a normal field of electric magnetic force, projected on the surface, worked out by means of numerous laboratory experiments and chiefly by experiments in the open and checked mathematically. Figure 2 shows a perspective view of this field.

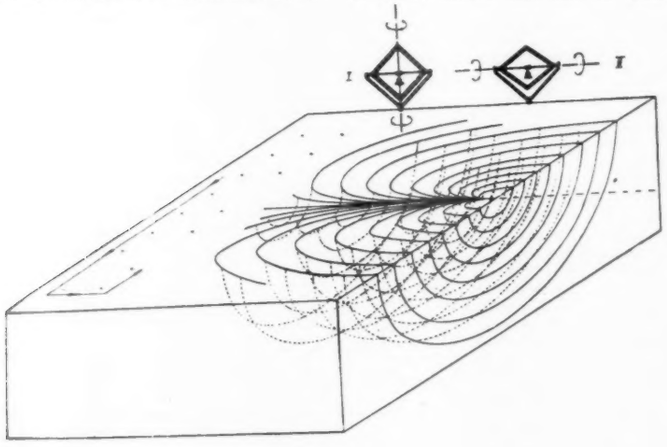

Figure 2.

The lines of electro-magnetic force flow not only in the horizontal plane but are also present in the vertical or in any sloping plane. From this will be seen that in the presence of particularly good or bad conductors underground the normal electro-magnetic flux would be deformed in such a manner that the electric current would endeavor to avoid dielectric bodies (bad electric conductors) and be attracted by good electric conductors. From the appearance of these deformations, their concentration and intensity, proper deductions can be made concerning the good or bad conductivity of bodies underground.

The apparatus used by the Elbof includes the motor sender used for producing the alternating current. The type of generator to be selected depends upon the area to be investigated, the depth to be attained and other factors. The current is sent into the ground by means of electrodes, the arrangement and location of which depend upon the existing geological conditions. For electrodes the following are used: Point electrodes, consisting of metal stakes of about 1 foot in length or a metal screen of several feet in diameter which is buried in the ground. Another arrangement is line electrodes, using two noninsulated cables, which are buried in the ground, parallel to each other and at certain distances.

In order to receive the directions of the electro-magnetic field in the horizontal and vertical plane and to record the intensity of the electro-magnetic field, a frame aerial is employed. In the center of the receiving frame is a compass for reading the direction and a clinometer to measure the angle of the dip. Connected with the aerial, are an amplifier, telephone and other instruments.

Sonde Method

An older method which is still being used is the so-called Sonde method (earth contacts.) By this method the primary (inducing) current sent into the ground is partly received by means of a sensitive instrument connected between two searcher sondes. This makes it possible to take in each point of the field the direction in which no drop of voltage occurs (direction of equi-potential lines.) Figure 3 presents a diagram of equi-potential lines, projected on the surface. These are lines connecting all points having the same electro-magnetic potential. They are always perpendicular to the lines of force.

The method of survey for the frame aerial method is as follows: The territory under investigation is first accurately topographically surveyed. At certain distances, along parallel lines surveying points are marked which serve the ob-

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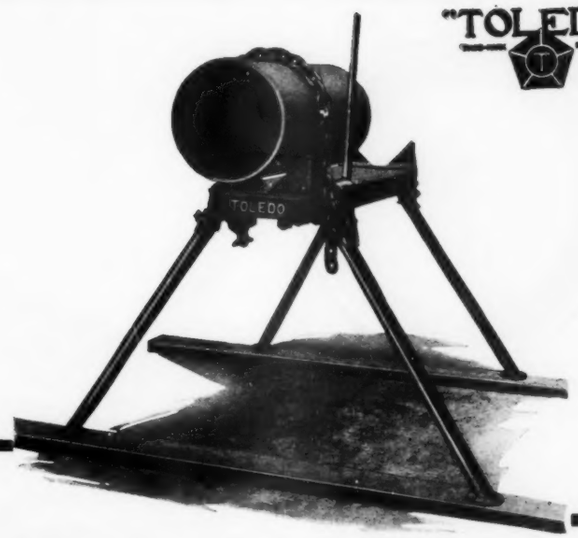

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You will find it just right for holding 4½" to 12" pipe when you wish to cut or thread it or make up flanges and fittings. It is very strong and rigid and is made to be fastened to the floor or to skids as illustrated.

The Chain Vise is of a special design, being built as a part of the bench, and only a part turn of the lever tightens the chain and firmly holds the pipe. Very quick and positive in operation. The table top is regularly furnished 4 ft. long and 1 ft. wide, but can be supplied in any length at extra cost on special order. It is equipped with a set of hardened steel jaws that may be readily replaced. A suitable pipe rest attached to the rear end of the table, supports the longer lengths of pipe.

You will find this work bench practically indestructible and will give years of satisfactory service. Every gang of pipe workers needs one of these new benches.

"Toledo" No. 9 Work Bench and Chain Vise, Complete. For 4½" 12" Pipe. Net Price $75.00

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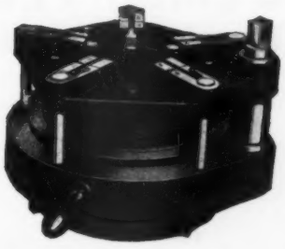
—And to Thread Large Pipe



—From 4½" to 8" you will find that the "TOLEDO" No. 3 Threading Device will do the work easily and quickly anywhere the pipe may happen to be, and you can cut the thread without trouble. It's specified by oil operators who know.

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server to make the readings. In the use of the frame aerial the primary (inducing) current itself is not taken but its magnetic field. The electro-magnetic lines of force of this current establishes in the solenoid (aerial) a secondary induction current. Is the aerial in the direction of the current lines, its plane is cut by the greatest number of lines of force, therefore the highest inductivity is present. It appears in the receiver as a maximum sound. This direction is plotted on a topographical chart of the territory. The taking of several field diagrams from different sides of the territory is necessary as it may happen that subterranean bodies of good or bad conductivity, on account of unfavorable position in relation to one or the other electrode, may not be sufficiently sharply defined in a single diagram.

How Methods Differ

In the interpretation of the two receiving methods a distinct difference can be noted: In the case of the direct consumption of the current by means of the searcher sondes, this method represents only a more or less shallow reception. The frame aerial method does not take the inducing current itself, but its magnetic field, consequently takes the integral of the total induction, vertical to the receiving instrument, up to great depths. A careful and correct interpretation of the field data is the main task of a geophysical concern. With reference to the information obtainable concerning deposits, it has been found from numerous investigations carried out that the best objects for survey by the electric method are those where the mineral is of very good conductivity or where it has

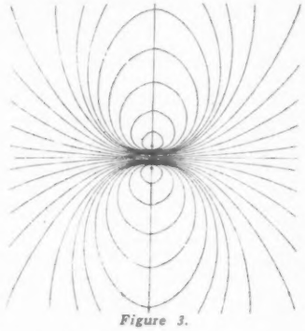


Figure 3.

high insulating properties. The two extremes are on the one hand oil deposits and on the other ore bodies. Oil deposits in all the surveys carried out have been clearly indicated.

The principal advantage of the electromagnetic induction method lies in the fact of the direct influence of the oil deposit itself. The seismic method as well as the gravimetric and magnetic intensity method give results more of geological and of structural importance than direct information concerning the deposit itself.

Another electric method employs for the transmission induced current. Instead of earth contacts, an insulated cable is used. The receiver also consists of an induction coil, similar to the Elbof aerial. The depth penetration for this method, it is claimed, does not exceed 300 meters.

Aids to Geologists

Practical geophysical investigations are aids to study of geology and it is therefore natural that the modern geologist should turn to this science of geophysics in his endeavors of locating useful deposits more accurately and quickly. The capital investment in drilling ventures, executed in the hope that certain geological deductions might prove correct, or at least eventually lead to the deposit, runs into enormous sums, especially in the case of petroleum. It is important that all geophysical explorations should be applied under careful consideration of the geological conditions and consequently in closest co-operation with thoroughly experienced local geologists. Also that the investigations be conducted by scientific experts who are able to decide which particular application is most suitable for individual cases before them.

The possibility of the electrical Elbof method being especially applicable for oil prospecting was known for a long time. However it was impossible to conduct such investigations for purely technical reasons. The sensitiveness of instruments in order to attain the necessary depth penetration had not been sufficiently perfected. With technical improvements and indefatigable efforts, this condition was

Investigating in Louisiana.

overcome, so that today a depth from 7,000 to 8,000 feet can be obtained. The Elbof method is applicable in the Gulf Coast country (salt domes) as well as in structural country.

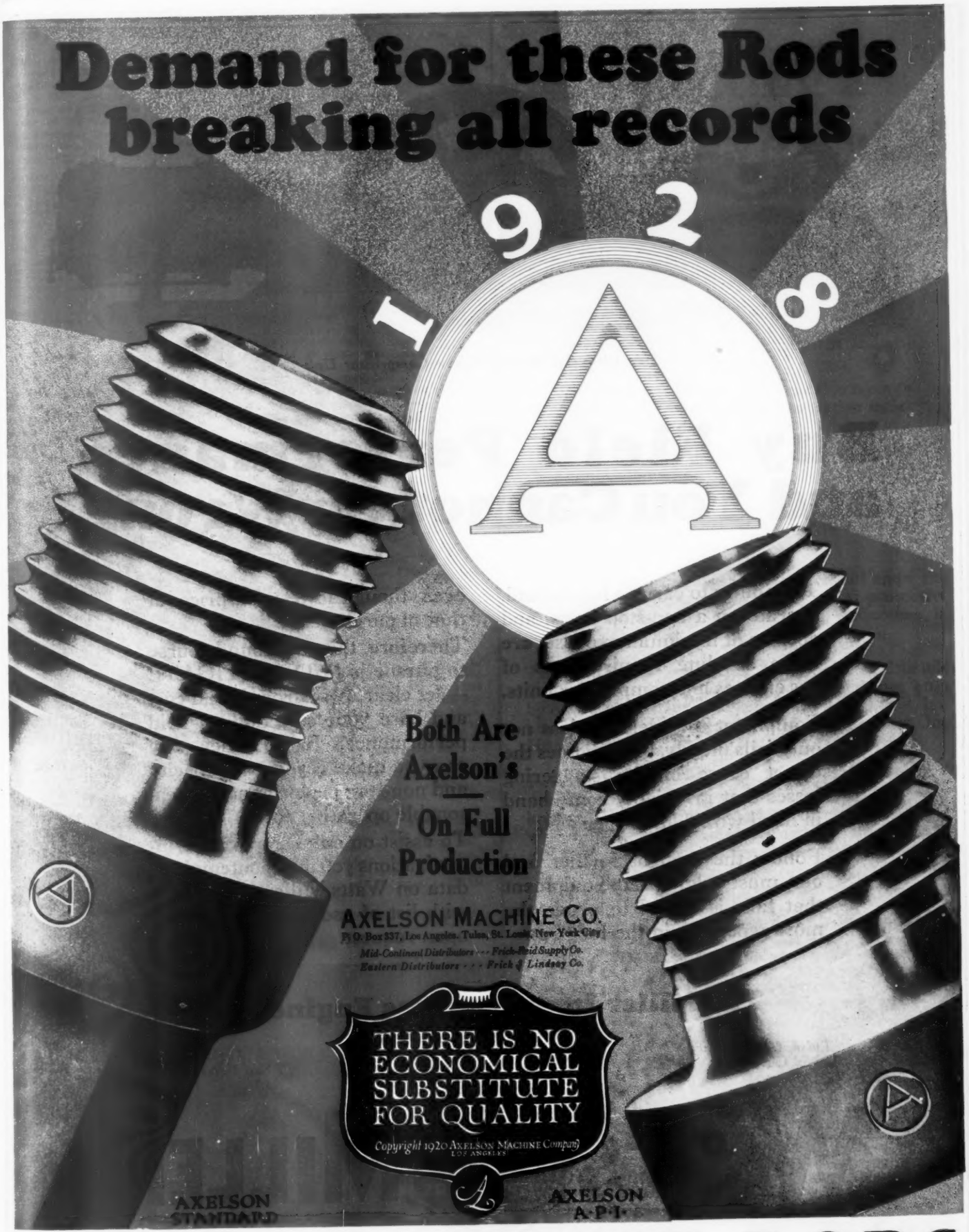
The science of applied geophysics is one of the youngest technical sciences and is more or less still in its infancy. Practically it is already of great value to the oil industry. The electric method is the least known of geophysical methods. Based on the same principle, the different companies employ differently constructed instruments and methods. The theory is sound and scientifically correct but deciding for results is practical experience. Experience, however, is gained only by practical investigation work.

ALASKA'S PRODUCTION LIMITED TO KATALLA

All the petroleum produced in Alaska during 1927, says the Alaskan branch of the United States Geological Survey, continued to come from the wells of the Chilkat Oil Co., near Katalla, where, in addition to the oil wells, the company operates a small refinery. The gasoline and distillate produced from this petroleum are much in demand in the local market, as they are said to be of better quality than the usual commercial brands.

Drilling to test the possibilities of oil in the vicinity of Johnson Creek, in the Yakataga district, was carried on by the General Petroleum Co. almost continuously until the middle of October, when operations were suspended. During that time the well had been driven from a depth of about 865 feet at the beginning of the year to a depth of 2,005 feet. The formations encountered in the well are reported to have consisted principally of hard sandstone and sandy shale with subordinate amounts of limestone. Several showings of gas had earlier been encountered at various depths from the surface down to 232 feet, and additional showings were noted at a depth of 1,643 feet. This well is known as the No. 1 Sullivan.

The only other place in Alaska where drilling for oil is in progress is in the Matanuska Valley a few miles west of Chickaloon, where the Peterson Oil Association's well has now reached a depth of 865 feet. Most of the formations penetrated after passing through about 180 feet of boulders and gravel near the surface have consisted of shale and related rocks in which nine coal beds have been recognized. At a depth of about 225 feet the well struck considerable gas, which ignited readily in the bailer. The presence of a coal bed at about this depth suggests that the gas may have come from that source rather than from an oil pool. The geologic conditions in this general region are not such as are usually associated with commercial deposits of petroleum, but the company is sufficiently encouraged by the work it has already done to continue still deeper and intends to renew its operation at this point as early in the coming spring as practicable.



AXELSON SUCKER RODS

Side View Gas Engine Driven Compressor Unit

Buy Field Performance and You Cannot Go Wrong

The ability to carry a heavy load, operate on a non-stop basis, and operate at minimum expense, are three absolute requirements of gas engines and compressor units.

Equipment that delivers less not only fails utterly, but becomes the direct cause of the staggering losses that invariably come hand in hand with "down" periods.

Follow the thought further and one must admit that equipment that fails is bound to prove the most expensive in the long run—even though lowest in price at time of purchase.

Therefore, the only sound course to pursue is to INVESTIGATE—get clear away from initial cost and base your selection on field performance. In no other way can you make certain of capacity and non-stop performance at reasonable operating costs.

To assist on any comparative investigations you may contemplate, data on Watts-Miller equipment, with list of users, will be mailed upon request.

The Miller Improved Gas Engine Co.
Springfield, Ohio

Tulsa, Okla., Office
323 No. Cheyenne Ave.

Los Angeles Office
807 San Fernando Bldg.

WATTS GAS ENGINES AND COMPRESSORS **MILLER**

CALIFORNIA RECEIPTS AND PETROLEUM IMPORTS

Imports of crude and refined oils at the principal United States ports for the week ended December 31 totaled 715,000 bbls., a daily average of 102,143 bbls., compared with 2,092,000 bbls., a daily average of 298,858 bbls. for the week ended December 24, and a daily average of 186,964 bbls. for the four weeks ended December 31.

At Atlantic Coast Ports—	Dec. 31
Baltimore	75,000
Boston	.....
New York	385,000
Philadelphia	75,000
Others	140,000
Total	675,000
Daily average	96,429
At Gulf Coast Ports—	
Galveston district	.....
New Orleans and Baton Rouge	40,000
Port Arthur and Sabine district	.....
Tampa	.....
Total	40,000
Daily average	5,714
At All United States Ports—	
Total	715,000
Daily average	102,143
Daily average 4 weeks ended	186,964

Receipts of California crude and refined oils at Atlantic and Gulf Coast ports for the week ended December 31 totaled 561,000 bbls., a daily average of 80,143 bbls., against 597,000 bbls., a daily average of 85,286 bbls. for the four weeks ended December 31.

At Atlantic Coast Ports—	Dec. 31
Baltimore	.....
Boston	.....
New York	233,000
Philadelphia	235,000
Others	93,000
Total	561,000
Daily average	80,143
At Gulf Coast Ports	.....
Daily average	.....
Total Atlantic, Gulf Coast Ports	561,000
Daily average	80,143
Daily average 4 weeks ended	87,571

Distribution of total California receipts is as follows:

Crude	159,000
Gasoline	255,000
Gas oil	74,000
Kerosene	73,000
Total	561,000

OSAGE OIL AND GAS LESSEES' ELECTION

At the annual meeting of the Osage Oil and Gas Lessees Association, the officers were re-elected:

President, R. F. MacArthur, Barnsdall Oil Co., Tulsa.

Vice president, H. R. Straight, Empire Companies, Bartlesville.

Treasurer, W. C. Franklin, Tidal Oil Co., Tulsa.

Secretary, Harry H. Smith.

The executive committee for 1928 is composed of the following: G. D. Allen, Winona Oil Co., Tulsa; R. J. Berry, Mid-Kansas Oil & Gas Co., Tulsa; Burdette Blue, Indian Territory Illuminating Oil Co., Bartlesville; Burt H. Collins, Echo Oil Co., Tulsa; Fred Cooke, Prairie Oil & Gas Co., Tulsa; William N. Davis, Phillips Petroleum Co., Bartlesville; J. C. Denton, Mid-Continent Petroleum Corp., Tulsa; James B. Diggs, Gypsy Oil Co., Tulsa; George B. Foster, Devonian Oil Co., Tulsa; W. C. Franklin, Tidal Oil Co., Tulsa; J. H. Gardner, Gardner Petroleum Co., Tulsa; Arthur Durham, Wiser Oil Co., Bartlesville; James A. Green, Roxana Petroleum Corp., Tulsa; J. H. Hill, The Texas Company, Tulsa; R. F. MacArthur, Barnsdall Oil Co., Tulsa; E. W. Marland, Marland Oil Co., Ponca City; R. S. McFarland, Twin State Oil Co., Tulsa; George Parker, Lewis Oil Co., Tulsa; A. G. Oliphant, Tulsa; Charles B. Peters, Peters Petroleum Co., Tulsa; R. A. Griffith, Sinclair Oil & Refining Co., Tulsa; Frank Phillips, Phillips Petroleum Co., Bartlesville; Alvin Richards, Pure Oil Co., Tulsa; R. C. Sharp, Oklahoma Natural Gas Corp., Tulsa; W. G. Skelly, Skelly Oil Co., Tulsa; J. B. Steele, Kewanee Oil & Gas Co., Tulsa; H. R. Straight, Empire Companies, Bartlesville; James A. Veasey, Carter Oil Co., Tulsa; R. E. Wertz, Producers & Refiners Corp., Tulsa.

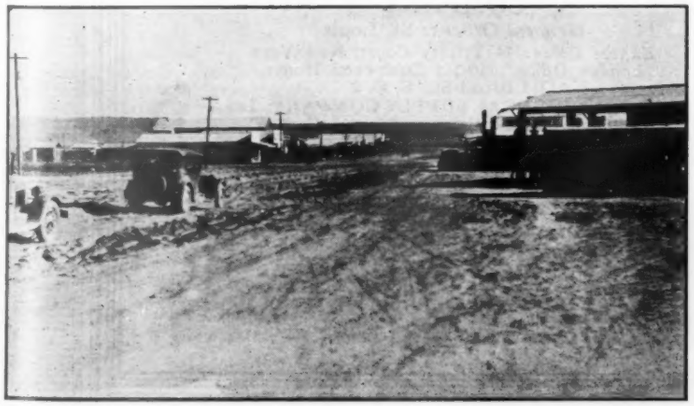
Sand Springs Home at Sand Springs will be requested to name a representative to serve on the committee.

J. George Wright of Pawhuska, superintendent of the Osage Indian Agency, also met with the Osage lessees.

TIDIOUTE'S DEEP WELL DELAYED BY FISHING

OIL CITY, Pa., Jan. 7.—The deep well being drilled by the Fidelity Petroleum Corp. at Tidioute is again confronted with a fishing job of considerable magnitude, having lost the spudding implements, with which they were endeavoring to loosen the drilling tools lost in the hole some weeks ago. W. M. Charlesworth, managing director, in charge of the Tidioute operation, said: "This is our second spud hole and we had spudded about 40 feet, alongside the tools, with only about 5 feet more to go, when the spud broke off, right at the square, leaving about 55 feet of the blade in the hole, besides the tools, and extending about 10 feet above them, which should enable us to get hold of them with the special fishing tool now being made for us. We have abandoned, for the present, trying to loosen the tools with acid, due to the water in the hole being heavier than the acid. The flow of gas remains steady and if we can get the well a few feet deeper into the sand from which this gas is coming, we will have a gas well that will be more profitable than an oil well."

METROPOLIS OF THE YATES POOL



This is the big town of Iraan, the only town close to the Yates Pool. It is just north of the eastern end of the field. This picture was snapped shortly after a light shower had somewhat settled the dust for a few hours. Generally, the visibility is not so good. Note the intense activity in this town which has a monopoly on the business of the greatest oil field in West Texas.

Selecting a Protective Paint

The importance of protecting metal surfaces against rust and corrosion is generally recognized. There are prevalent, however, many different ideas about protective paints and their respective merits.

The intelligent selection of a protective paint for steel requires three facts:

First, a knowledge of the pigment and vehicle used,

Second, a knowledge of the service records made by the paint and representative satisfied users,

Third, a knowledge of the manufacturer's reputation and facilities.

With this knowledge, it is usually easy to determine whether or not a particular paint will meet the requirements of a specified service.

In future issues of this magazine we will show the importance of the physical properties of protective paint pigments, and especially the difference in graphite pigments.

That the reputation of the Joseph Dixon Crucible Company is unimpeachable is evidenced, not only by our many satisfied customers the world over, but also by the fact that the year 1927 marked our One Hundredth Anniversary.

For one hundred years our business has followed every ramification of graphite use. With every known grade and form passing through our hands, we are in a position to select and use that kind of graphite best suited to any particular purpose.

Write for Color Card and Booklet 188-B.

The labor cost for painting averages 1½ cents a square foot (about twice the cost of the paint applied). This labor cost is the same whether a cheap paint or a good paint is used. When you specify good paint that lasts twice as long in service, the labor cost is halved at a fractional increase in the small paint cost.

JOSEPH DIXON CRUCIBLE COMPANY

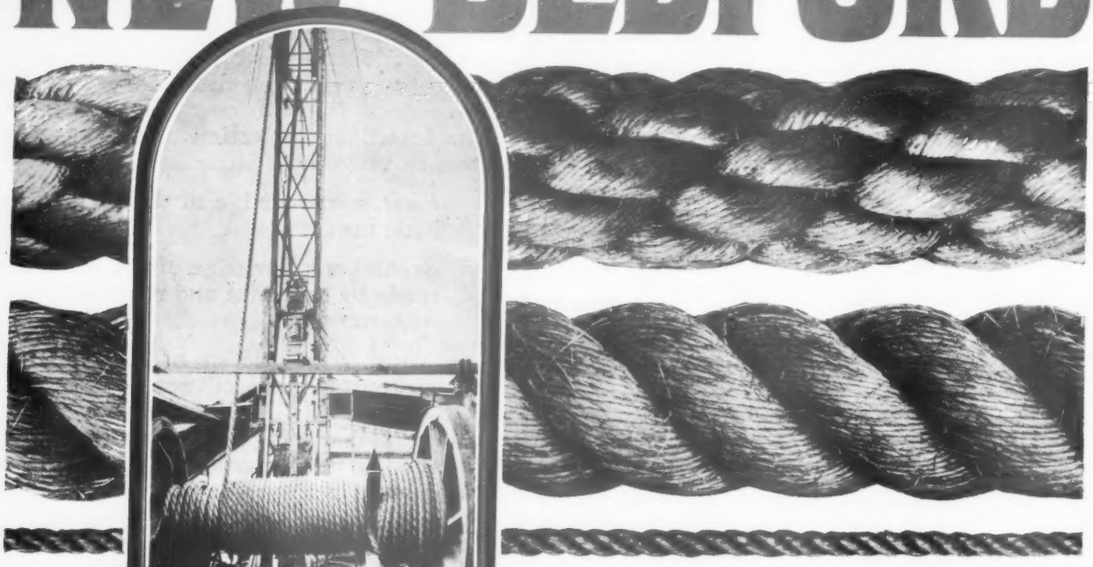
Jersey City **New Jersey**

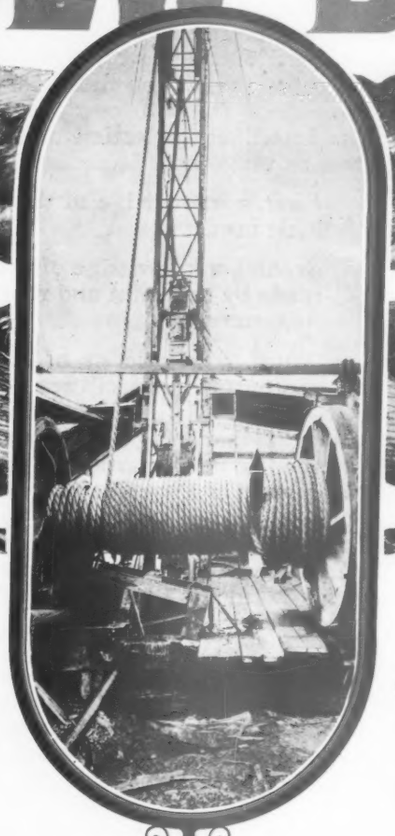
Established 1827

DIXON'S SILICA GRAPHITE PAINT

ADEQUATE PROTECTION AT MINIMUM ULTIMATE COST

NEW BEDFORD





when JOHN TYLER was PRESIDENT

New Bedford Cordage had *already* earned a wide reputation for strength and durability. Many years later, when men began to drill for petroleum, New Bedford furnished manila drilling cables of the highest quality.

Now, as regards Drilling Cables, Bull Ropes and Torpedo Lines, "New Bedford—None Better" is a slogan founded on fact.

"If CONTINENTAL Sells It, There Is No Better"

DRILLING CABLES
BULL ROPES
TORPEDO LINES

THE CONTINENTAL SUPPLY COMPANY
General Offices: St. Louis
Export Office: 74 Trinity Court, New York
London Office: 316-317 Dashwood House, Old Broad St., E. C. 2
THE CONTINENTAL SUPPLY COMPANY, Ltd.
69 Thomas Block, Calgary, Alberta, Canada

CONTINENTAL

CALIFORNIA MARKET HAD SLIGHT SOFTENING

LOS ANGELES, Calif., Jan. 6.—The California market is quiet. There has been a slight softening in practically all oils during the past week. While prices remain unchanged in most cases, the market has not the firm tone that it has shown of late.

Gasoline continues to move in good volume domestically. The spread in prices is greater than it has been due to the fact that small spot lots are being purchased in isolated cases at as much as a cent under the prevailing price. As yet there have been only a few of such distress sales but, with the increase in production at Signal Hill and the possibility that refineries now shut down will start up, some marketers are looking for cheaper gasoline before very long. It is understood, however, that in the case of a few of the smaller refiners in this district, any excess crude which they do not feel able to run through their own plants, they can sell to one or two of the larger companies at as much as a 5-cent bonus. This condition will help greatly towards steadying the gasoline market in southern California.

Domestic kerosene is softer than it was two or three weeks ago. Most sales are still being made around 5½ cents but one or two companies are quoting as low as 5 cents. Fuel oil remains weak. Stocks at refineries are large and the market in general is active with quite a difference in price bid and asked. Shipments of fuel oil are very low, practically the only movements being those covered by old contracts. At present prices asked by California refiners they cannot compete satisfactorily with Gulf fuel oil in the Atlantic Seaboard market. Fuel oil in tank cars is weak also, sales being made at as low as 65 cents per barrel in some cases. Practically no spot business is bringing over 70 cents a barrel.

PENNSYLVANIA MARKET SHOWS LITTLE CHANGE

OIL CITY, Pa., Jan. 7.—There was not much change in the gasoline conditions in the Pennsylvania refined market during the past week. Gasoline and naphthas are not moving very well and actual consumption took a big slump, largely as the result of the severe cold wave which struck eastern territory during that period.

Kerosene is a little softer than it has been. There has been only a fair movement in cylinder stocks which are in the same condition as in past weeks. More fuel oil is moving and the price is a little stronger. Steel mills are using more Pennsylvania fuel oil now as the Pennsylvania refiners can lay down fuel oil as far away as Buffalo and Youngstown as cheaply as the Mid-Continent refiners. This increased demand is relieving storage considerably in this district and sending prices higher.

Neutrals are holding up well. Bright stocks prices are higher but there have been no price changes of any account. Wax is moving better.

ANALYSES OF WEST TEXAS CRUDE OILS

(Continued from Page 30)

corrosion. The purifying process is a regenerative one in which soda ash is used to remove the hydrogen sulphide.

World Field

The discovery well in the World Field was completed as a pumper on May 25, 1925, with an initial production of 25 bbls. at a depth of 2,647 feet. The average depth of the producing formation in this field is 2,500 to 2,700 feet.

The production of the field to May 1, 1927, was 449,500 bbls. On July 1, 1927, the field production was approximately 1,400 bbls. from 27 wells. On October 31, 1927, the field was producing approximately 2,500 bbls. daily.

Hendricks Field, Winkler County

The discovery well was completed November 8, 1926, by the Eastland Oil Co. and Westbrook on the Hendricks land at a depth of 3,030 feet, or 100 feet below sea level. The average depth of the producing formation is 2,700 to 3,100 feet. The largest well in the field, which was completed November 20, 1927, gauged 980 bbls. the first hour. On November 15, 1927, there were 19 producing wells, 64 drilling wells, and 13 derricks up. The daily production of this field on November 15, 1927, was about 16,000 bbls.

Yates Field

The discovery well in this field was completed October 28, 1926, by the Transcontinental Oil Co. and Mid-Kansas Oil & Gas Co. as a joint test on the Yates lease at a depth of 997 feet. The depth to the producing formation varies from less than 900 feet to more than 1,500 feet. This field is credited with being the greatest shallow field ever discovered. There were on November 15, 1927, 50 producing wells, which outline a probable proven area estimated up to 10,000 acres. A well brought in by the Transcontinental-Mid-Kansas interests on November 20, 1927, gauged 2,043.9 bbls. in 45 minutes.

For a discussion of the methods used by the Bureau of Mines in analyzing crude oil see Bulletin 207[3]. For a discussion of the interpretation of crude-oil analyses see Serial No. 2806[4]. Table 1 summarizes the results of these analyses by presenting some of the figures indicating physical and chemical properties of the crudes. Table 2 presents figures for the gravities of the fractions distilling at atmospheric pressure between 250 degrees and 275 degrees Centigrade and the cloud points of the fractions distilling between 275 degrees and 300 degrees Centigrade at 40 mm. absolute pressure. These figures indicate the "base" of a crude oil[4].

Gravities are reported in A.P.I. degrees. This is the scale formerly known in the American petroleum industry as "Baume," based on the modulus 141.5 as distinguished from the Baume scale, which is based on the modulus 140.0[5].

The crude oils included in this report may be divided into four groups on the basis of the characteristics of the samples.

Sample 27,866, from the Big Lake Field of Reagan County, is a typical high-grade intermediate-base crude similar to a great deal of the Mid-Continent production.

Samples 27,856 and 27,858, from the Chalk Field of Howard County, represent a heavier oil that contains a larger proportion of sulphur than the Big Lake sample. However, these samples can be readily classified as intermediate-base oils.

Samples 27,857, 27,860, 27,861 and 27,862 represent crudes from a depth of 2,800 to 3,200 feet. These samples were obtained in the Chalk, Church & Fields, and McElroy Fields and are heavy, high-sulphur crudes. Except for the high sulphur content, these crudes are not unlike a number of the crudes produced in northern Texas, northern Louisiana, Oklahoma and Kansas. These crudes are therefore also in the intermediate class, although they approach in some respects the properties of typical naphthene base crudes.

Samples 27,863, 27,864, and 27,867 are heavy crudes containing a comparatively small proportion of gasoline and naphtha. The first two contain more than 2 per cent of sulphur; but sample 27,867, with 0.59 per cent, is a comparatively low sulphur crude. These samples fit into the intermediate-base class, according to the Bureau of Mines method of analysis and interpretation, although they are in the heavy crude section of this class.

Sample 27,859, from the Hendricks Field, Winkler County, and Sample 27,865, from the Yates Field, Pecos County, are classified in this report as naphthene-base crudes, although they differ considerably from typical naphthene-base crudes, such as those from Kern County, California.

The fractions obtained in the "air distillation" of typical naphthene-base crudes are of heavier gravity than fractions of the same boiling range in Samples 27,859 and 27,865. A typical naphthene-base crude oil does not show any kerosene distillate by the Bureau of Mines method of analysis and interpretation, whereas these samples respectively contain 5.0 and 5.6 per cent of kerosene distillate.

[3]Dean, E. W., and others, the analytical distillation of petroleum and its products: Bull. 207, Bureau of Mines, 82 pp. Obtainable from the Government Printing Office, Washington, D. C., at 15 cents a copy.

[4]Smith, N. A. C., the interpretation of crude-oil analyses: Repts. of Investigations, Bureau of Mines, Serial No. 2806, May, 1927.

[5]A concise statement of the reasons for the general adoption of the A.P.I. gravity scale has been prepared by the American Petroleum Institute, 250 Park Ave., New York, N. Y.

SAMPLE NO. 27,866

Texas, Big Lake Field, Reagan County, composite sample, Sand-Permian lime, depth average, 2,900-3,100 feet; specific gravity, 0.834; A.P.I. gravity, 38.2 degrees; per cent sulphur, 0.36; per cent water, nil; Saybolt Universal viscosity at 70 degrees Fahrenheit, 47 seconds; pour point below 5 degrees Fahrenheit; Saybolt Universal viscosity at 100 degrees Fahrenheit, 41 seconds; color—green.

DISTILLATION, BUREAU OF MINES, HEMPEL METHOD

Air Distillation Temperature Degrees Centigrade	Per cent cut	Sum per cent	Specific gravity cut	Degrees A.P.I. cut	Viscosity at 100°F.	First Drop: 29°C. (84°F.) Cloud test °F.	Temperature Degrees Fahrenheit
			Barometer 746 mm				
Up to 50	2.1	2.1					Up to 122
50- 75	2.3	4.4	.668	80.3	....	....	122-167
75-100	5.5	9.9	.705	69.2	....	....	167-212
100-125	7.4	17.3	.738	60.2	....	....	212-257
125-150	6.3	23.6	.758	55.2	....	....	257-302
150-175	4.5	28.1	.779	50.1	....	....	302-347
175-200	4.7	32.8	.795	46.5	....	....	347-392
200-225	4.5	37.3	.811	43.0	....	....	392-437
225-250	5.3	42.6	.825	40.0	....	....	437-482
250-275	5.0	47.6	.835	38.0	....	....	482-527
			Vacuum distillation at 40 mm.				
Up to 200	5.1	5.1	.855	34.0	41	5	Up to 392
200-225	5.8	10.9	.861	32.8	48	30	392-437
225-250	5.1	16.0	.870	31.1	66	50	437-482
250-275	4.1	20.1	.886	28.2	105	70	482-527
275-300	6.1	26.2	.897	26.3	200	90	527-572

Residuum, 24.9 per cent; distillation loss, 1.3 per cent; carbon residue of residuum, 4.6 per cent; carbon residue of crude, 1.1 per cent.

(Continued on Page 80)

TABLE 1
Data Showing Sources of Samples and Some of the Figures Indicating Physical and Chemical Properties

Sample No.	Field	Sand	Depth feet	Properties of Crude: ° A.P.I.	% S	Viscosity at 100° F.	Pour Test ° F.	Gasoline Fraction %	Gasoline Fraction ° A.P.I.	Viscosity at 100° F. of Vacuum Fractions 225-250	250-275	275-300	% Carbon Residue of Residuum
27,866	Big Lake	Permian Lime	2,900-3,100	38.2	.36	41	(*)	32.8	59.5	66	105	200	4.6
27,856	Chalk	Chalk	1,770-1,800	32.1	.84	60	50	25.0	57.2	60	89	155	12.0
27,858	Chalk	Chalk	1,600-1,630	31.3	.91	63	35	23.7	56.2	61	91	145	12.5
27,857	Chalk	Porous Limestone	2,956-2,990	26.8	2.02	66	25	21.2	54.9	63	97	180	13.9
27,860	Church Fields	Permian Lime	2,900-3,200	31.1	2.69	50	(*)	26.8	57.4	62	100	180	12.0
27,861	McElroy	Permian Lime	2,800-2,900	33.0	2.42	51	(*)	27.0	57.9	61	93	175	11.3
27,862	McElroy	Permian Lime	2,800-2,900	32.8	2.40	47	(*)	26.6	57.4	65	100	180	11.2
27,863	McCamey	Permian L'me	1,800-2,300	24.5	2.29	110	(*)	14.5	50.9	70	125	230	11.7
27,864	McCamey	Permian Lime	1,800-2,300	25.6	2.23	104	(*)	15.8	54.9	76	135	270	12.3
27,867	World	Permian Lime	2,500-2,700	29.7	.59	80	35	18.8	54.7	69	110	200	5.8
27,859	Hendricks	Permian Lime	2,700-3,100	30.0	1.53	56	(*)	22.7	57.7	76	135	270	8.5
27,865	Yates	Permian	1,000-1,500	30.0	1.61	59	(*)	22.2	56.4	73	125	270	11.6

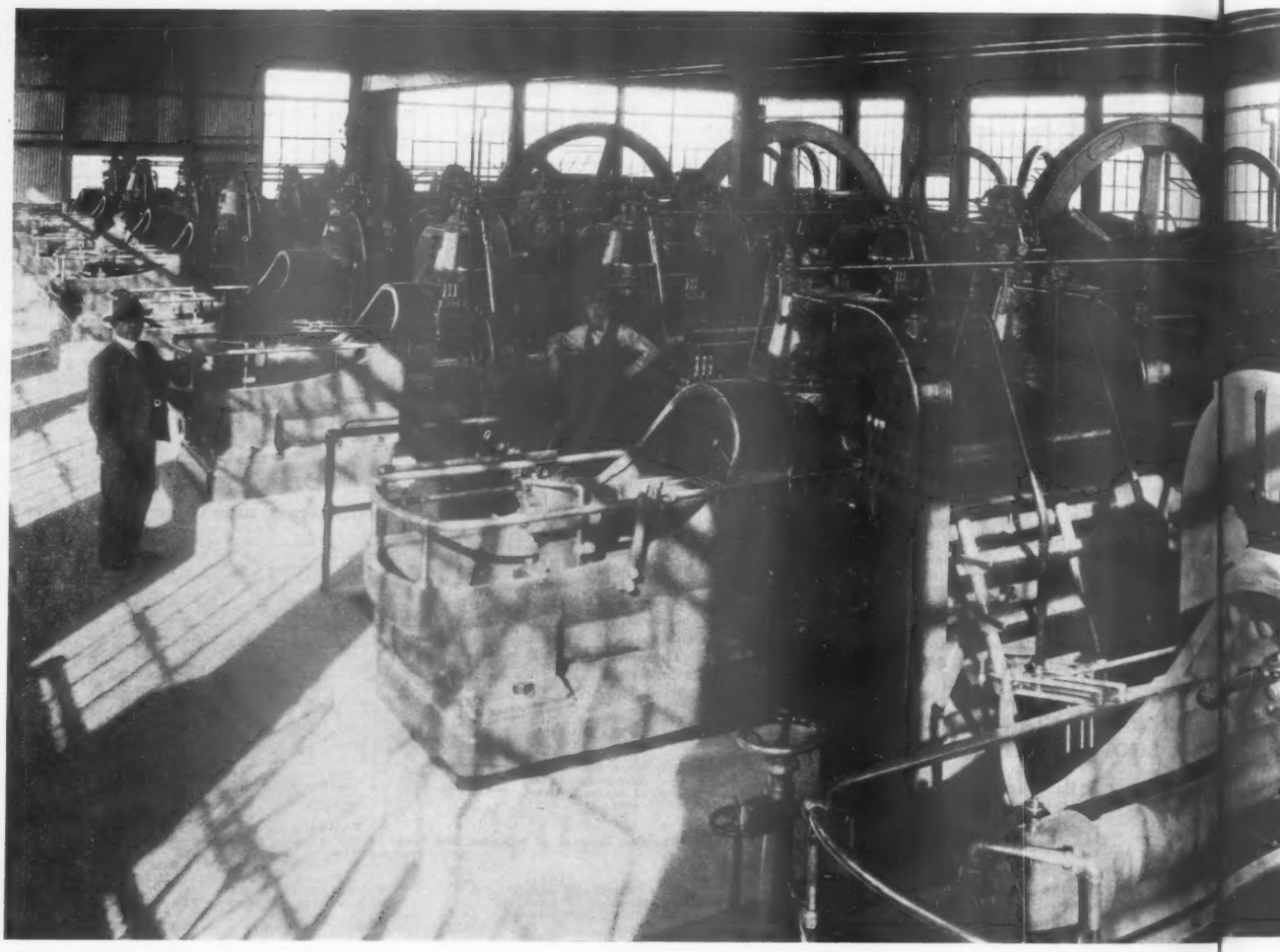
*Below 5 degrees Fahrenheit.

TABLE 2
Data Indicating the "Base" of the Crude Oil

Sample No.	Field	Sand	Depth	Fraction distilling at atmospheric pressure between 250-275° C. (482-527° F.) Sp. Gr.	° A.P.I.	Fraction distilling at 40 mm. vacuum between 275-300° C. (527-572° F.) Cloud Point ° F.	Base of Crude
27,866	Big Lake	Permian Lime	2,900-3,100	.835	38.0	90	Intermediate
27,856	Chalk	Chalk	1,770-1,800	.837	37.6	90	Intermediate
27,858	Chalk	Chalk	1,600-1,630	.836	37.8	90	Intermediate
27,857	Chalk	Porous Limestone	2,956-2,990	.851	34.8	95	Intermediate
27,860	Church Fields	Permian Lime	2,900-3,200	.840	37.0	90	Intermediate
27,861	McElroy	Permian Lime	2,800-2,900	.841	36.8	85	Intermediate
27,862	McElroy	Permian Lime	2,800-2,900	.841	36.8	90	Intermediate
27,863	McCamey	Permian Lime	1,800-2,300	.858	33.4	50	Intermediate
27,864	McCamey	Permian Lime	1,800-2,300	.853	34.4	55	Intermediate
27,867	World	Permian Lime	2,500-2,700	.844	36.3	80	Intermediate
27,859	Hendricks	Permian Lime	2,700-3,100	.857	33.6	(*)	Naphthene
27,865	Yates	Permian Lime	1,000-1,500	.854	34.2	(*)	Naphthene

*Below 5 degrees Fahrenheit.

OLD CUSTOMERS BRING NEW ONES

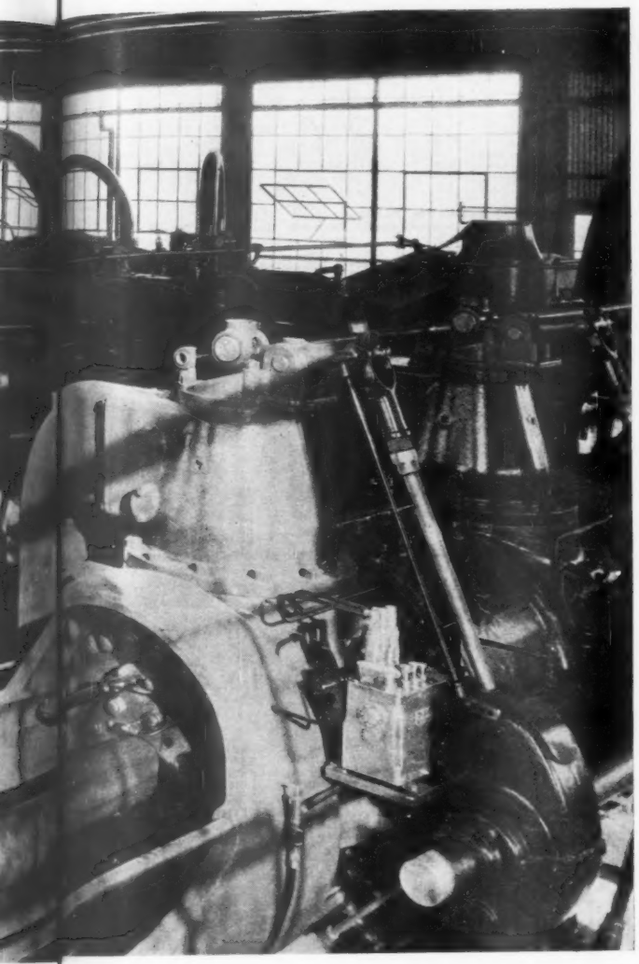


The illustration shows the Ottawa, Kansas, station, which is the first of the four compressor stations on Cities Service Gas Pipe Line Company's 450-mile Amarillo-Kansas City gas line to go into service.

COOPER GA

THE OLD ONES KNOW, THE NEW ONES SOON LEARN, THAT

NEW CUSTOMERS BECOME PERMANENT ONES



WHY

Were Cooper Engines Selected on the Biggest Order Ever Placed for Compressor Equipment?

Cities Service Gas Pipe Line Company officials in choosing 14,300 H.P. of Cooper gas engine driven compressors, on what is generally conceded the largest single order ever placed for this type of machinery, were no doubt influenced by three factors.

(1) They had used Cooper equipment and knew it to be dependable.

(2) They knew the Cooper organization, even the men who built the engines, and believed that an important delivery date would be met and that the machinery would be up to the usual standard.

(3) They knew that the Cooper Company dur- 94 years had built a reputation for friendly service and fairness, and that it would continue the same policy as long as service would be needed.

Every year these same reasons cause more and more compressor users to place their trust in Cooper equipment.

Cooper gas engines are built in standard sizes from 50 B.H.P. to 1500 B.H.P. for every power purpose.

The C. & G. Cooper Company
MT. VERNON, OHIO
649 S. Olive Street,
Los Angeles
604 Kennedy Bldg., Tulsa
1111 Magnolia Bldg., Dallas

AS ENGINES

AT OUR INTEREST IN A COOPER ENGINE NEVER DIES

APPROXIMATE SUMMARY

	Per cent	Specific gravity	°A.P.I.	Viscosity
Light gasoline	9.9	.689	73.9	
Total gasoline and naphtha	32.8	.741	59.5	
Kerosene distillate	9.8	.819	41.3	
Gas oil	13.7	.849	35.2	
Nonviscous lubricating distillate	8.8	.862-.884	32.7-28.6	50-100
Medium lubricating distillate	5.7	.884-.897	28.6-26.3	100-200
Viscous lubricating distillate	3.0	.897-.904	26.3-25.0	Above 200
Residuum	24.9	.940	19.0	
Distillation loss	1.3	....	....	

SAMPLE NO. 27,856

Texas, Chalk Field, Howard County, tank battery sample, Sand-Chalk; depth 1,770-1,800 feet; specific gravity, 0.865; A.P.I. gravity, 32.1 degrees; per cent sulphur, 0.84; per cent water, nil; Saybolt Universal viscosity at 70 degrees Fahrenheit, 92 seconds; pour point, 50 degrees Fahrenheit; Saybolt Universal viscosity at 100 degrees Fahrenheit, 60 seconds; color—brownish black.

DISTILLATION, BUREAU OF MINES, HEMPEL METHOD

Air Distillation — Barometer 745 mm. — First Drop: 30°C. (86°F.)

Temperature Degrees Centigrade	Per cent cut	Sum per cent	Specific gravity cut	Degrees A.P.I. cut	Viscosity at 100°F.	Cloud test °F.	Temperature Degrees Fahrenheit
Up to 50	0.8	0.8 }					Up to 122
50- 75	2.0	2.8 }	.672	79.1	....	....	122-167
75-100	3.5	6.3	.715	66.4	....	....	167-212
100-125	5.1	11.4	.743	58.9	....	....	212-257
125-150	4.8	16.2	.763	54.0	....	....	257-302
150-175	4.7	20.9	.780	49.9	....	....	302-347
175-200	4.1	25.0	.795	46.5	....	....	347-392
200-225	4.5	29.5	.810	43.2	....	....	392-437
225-250	5.0	34.5	.823	40.4	....	....	437-482
250-275	6.4	40.9	.837	37.6	....	....	482-527
Vacuum distillation at 40 mm.							
Up to 200	5.0	5.0	.859	33.2	41	10	Up to 392
200-225	6.0	11.0	.864	32.3	48	30	392-437
225-250	4.9	15.9	.878	29.7	60	55	437-482
250-275	4.8	20.7	.893	27.0	89	70	482-527
275-300	6.0	26.7	.895	26.6	155	90	527-572

Residuum, 31.5 per cent; distillation loss, 0.9 per cent; carbon residue of residuum, 12.0 per cent; carbon residue of crude, 3.8 per cent.

APPROXIMATE SUMMARY

	Per cent	Specific gravity	°A.P.I.	Viscosity
Light gasoline	6.3	.696	71.8	
Total gasoline and naphtha	25.0	.750	57.2	
Kerosene distillate	9.5	.817	41.7	
Gas oil	15.4	.852	34.6	
Nonviscous lubricating distillate	10.3	.867-.893	31.7-27.0	50-100
Medium lubricating distillate	7.4	.893-.895	27.0-26.6	100-200
Viscous lubricating distillate	..	....	....	Above 200
Residuum	31.5	.970	14.4	
Distillation loss	0.9	....	....	

SAMPLE NO. 27,858

Texas, Chalk Field, Howard County, composite sample; Sand-Chalf; depth 1,600-1,630 feet; specific gravity, 0.869; A.P.I. gravity, 31.3 degrees; per cent sulphur, 0.91; per cent water, 0.7; Saybolt Universal viscosity at 70 degrees Fahrenheit, 120 seconds; pour point, 35 degrees Fahrenheit; Saybolt Universal viscosity at 100 degrees Fahrenheit, 63 seconds; color—brownish black.

DISTILLATION, BUREAU OF MINES, HEMPEL METHOD

Air Distillation — Barometer 746 mm. — First Drop: 30°C. (86°F.)

Temperature Degrees Centigrade	Per cent cut	Sum per cent	Specific gravity cut	Degrees A.P.I. cut	Viscosity at 100°F.	Cloud test °F.	Temperature Degrees Fahrenheit
Up to 50	0.8	0.8 }					Up to 122
50- 75	2.9	3.7 }	.691	73.3	....	....	122-167
75-100	3.0	6.7	.726	63.4	....	....	167-212
100-125	3.7	10.4	.747	57.9	....	....	212-257
125-150	4.4	14.8	.764	53.7	....	....	257-302
150-175	4.3	19.1	.779	50.1	....	....	302-347
175-200	4.6	23.7	.794	46.7	....	....	347-392
200-225	4.7	28.4	.810	43.2	....	....	392-437
225-250	5.3	33.7	.824	40.2	....	....	437-482
250-275	6.6	40.3	.836	37.8	....	....	482-527
Vacuum distillation at 40 mm.							
Up to 200	5.3	5.3	.862	32.7	42	15	Up to 392
200-225	4.6	9.9	.864	32.3	48	35	392-437
225-250	5.2	15.1	.878	29.7	61	55	437-482
250-275	4.6	19.7	.891	27.3	91	70	482-527
275-300	6.1	25.8	.893	27.0	145	90	527-572

Residuum, 32.1 per cent; distillation loss, 1.8 per cent; carbon residue of residuum, 12.5 per cent; carbon residue of crude, 4.0 per cent.

APPROXIMATE SUMMARY

	Per cent	Specific gravity	°A.P.I.	Viscosity
Light gasoline	6.7	.707	68.6	
Total gasoline and naphtha	23.7	.754	56.2	
Kerosene distillate	10.0	.817	41.7	
Gas oil	15.0	.852	34.6	
Nonviscous lubricating distillate	9.9	.866-.891	31.9-27.3	50-100
Medium lubricating distillate	7.5	.891-.894	27.3-26.8	100-200
Viscous lubricating distillate	..	....	....	Above 200
Residuum	32.1	.971	14.2	
Distillation loss	1.8	....	....	

SAMPLE NO. 27,857

Texas, Chalk Field, Howard County, Sand-Porous limestome; depth, 2,956-2,990 feet; specific gravity, 0.894; A.P. I. gravity, 26.8 degrees; per cent sulphur, 2.02; per cent water, nil; Saybolt Universal viscosity at 70 degrees Fahrenheit, 125 seconds; pour point, 25 degrees Fahrenheit; Saybolt Universal viscosity at 100 degrees Fahrenheit, 66 seconds; color—brownish black.

DISTILLATION, BUREAU OF MINES, HEMPEL METHOD

Air Distillation — Barometer 745 mm. — First Drop: 30°C. (86°F.)

Temperature Degrees Centigrade	Per cent cut	Sum per cent	Specific gravity cut	Degrees A.P.I. cut	Viscosity at 100°F.	Cloud test °F.	Temperature Degrees Fahrenheit
Up to 50	1.2	1.2 }					Up to 122
50- 75	1.9	3.1 }	.689	73.9	....	....	122-167
75-100	2.3	5.4	.719	65.3	....	....	167-212
100-125	4.0	9.4	.747	57.9	....	....	212-257
125-150	4.1	13.5	.772	51.8	....	....	257-302
150-175	4.0	17.5	.790	47.6	....	....	302-347
175-200	3.7	21.2	.806	44.1	....	....	347-392
200-225	4.5	25.7	.820	41.1	....	....	392-437
225-250	5.7	31.4	.836	37.8	....	....	437-482
250-275	6.5	37.9	.851	34.8	....	....	482-527
Vacuum distillation at 40 mm.							
Up to 200	5.0	5.0	.878	29.7	42	15	Up to 392
200-225	5.8	10.8	.888	27.9	49	35	392-437
225-250	5.5	16.3	.904	25.0	63	55	437-482
250-275	5.2	21.5	.917	22.8	97	75	482-527
275-300	6.6	28.1	.929	20.8	180	95	527-572

Residuum, 33.9 per cent; distillation loss, 0.1 per cent; carbon residue of residuum, 13.9 per cent; carbon residue of crude, 2.7 per cent.

APPROXIMATE SUMMARY

	Per cent	Specific gravity	°A.P.I.	Viscosity
Light gasoline	5.4	.702	70.1	
Total gasoline and naphtha	21.2	.759	54.9	
Kerosene distillate	4.5	.820	41.1	
Gas oil	20.7	.859	33.2	
Nonviscous lubricating distillate	10.7	.889-.917	27.7-22.8	50-100
Medium lubricating distillate	7.1	.917-.932	22.8-20.3	100-200
Viscous lubricating distillate	1.8	.932-.936	20.3-19.7	Above 200
Residuum	33.9	1.010	....	
Distillation loss	0.1	....	....	

SAMPLE NO. 27,860

Texas, Church & Fields Field, Crane-Upton Counties, composite sample, sand, Permian lime; depth average, 2,900-3,200 feet; specific gravity, 0.870; A.P.I. gravity, 31.1 degrees; per cent sulphur, 2.69; per cent water, nil; Saybolt Universal viscosity at 70 degrees Fahrenheit, 69 seconds; pour point, below 5 degrees Fahrenheit; Saybolt Universal viscosity at 100 degrees Fahrenheit, 50 seconds; color—greenish black.

DISTILLATION, BUREAU OF MINES, HEMPEL METHOD

Air Distillation — Barometer 746 mm. — First Drop: 30°C. (86°F.)

Temperature Degrees Centigrade	Per cent cut	Sum per cent	Specific gravity cut	Degrees A.P.I. cut	Viscosity at 100°F.	Cloud test °F.	Temperature Degrees Fahrenheit
Up to 50	1.2	1.2 }					Up to 122
50- 75	2.1	3.3 }	.681	76.3	....	....	122-167
75-100	3.6	6.9	.711	67.5	....	....	167-212
100-125	6.1	13.0	.742	59.2	....	....	212-257
125-150	6.2	19.2	.767	53.0	....	....	257-302
150-175	3.8	23.0	.782	49.5	....	....	302-347
175-200	3.8	26.8	.796	46.3	....	....	347-392
200-225	4.6	31.4	.811	43.0	....	....	392-437
225-250	5.2	36.6	.825	40.0	....	....	437-482
250-275	6.9	43.5	.840	37.0	....	....	482-527
Vacuum distillation at 40 mm.							
Up to 200	4.6	4.6	.865	32.1	40	10	Up to 392
200-225	5.6	10.2	.875	30.2	47	25	392-437
225-250	6.0	16.2	.890	27.5	62	50	437-482
250-275	5.7	21.9	.903	25.2	100	70	482-527
275-300	5.8	27.7	.910	24.0	180	90	527-572

Residuum, 27.6 per cent; distillation loss, 1.2 per cent; carbon residue of residuum, 12.0 per cent; carbon residue of crude, 3.3 per cent.

APPROXIMATE SUMMARY

	Per cent	Specific gravity	°A.P.I.	Viscosity
Light gasoline	6.9	.697	71.5	
Total gasoline and naphtha	26.8	.749	57.4	
Kerosene distillate	9.8	.818	41.5	
Gas oil	15.6	.856	33.8	
Nonviscous lubricating distillate	10.4	.878-.903	29.7-25.2	50-100
Medium lubricating distillate	7.2	.903-.912	25.2-23.7	100-200
Viscous lubricating distillate	1.4	.912-.914	23.7-23.3	Above 200
Residuum	27.6	.932	12.6	
Distillation loss	1.2	....	....	

SAMPLE NO. 27,861

Texas, McElroy Field, Crane-Upton Counties, sand, Permian lime, well No. 1; depth average, 2,800-2,900 feet; specific gravity, 0.860; A.P.I. gravity, 33.0 degrees; per cent sulphur, 2.42; per cent water, nil; Saybolt Universal viscosity at 70 degrees Fahrenheit, 59 seconds; pour point, below 5 degrees Fahrenheit; Saybolt Universal viscosity at 100 degrees Fahrenheit, 51 seconds; color—greenish black.

DISTILLATION, BUREAU OF MINES, HEMPEL METHOD

Air Distillation — Barometer 742 mm. — First Drop: 29°C. (84°F.)

Temperature Degrees Centigrade	Per cent cut	Sum per cent	Specific gravity cut	Degrees A.P.I. cut	Viscosity at 100°F.	Cloud test °F.	Temperature Degrees Fahrenheit
Up to 50	1.0	1.0 }					Up to 122
50- 75	2.3	3.3 }	.674	78.4	....	....	122-167
75-100	4.1	7.4	.709	68.1	....	....	167-212
100-125	5.7	13.1	.741	59.5	....	....	212-257
125-150	6.3	19.4	.766	53.2	....	....	257-302
150-175	3.8	23.2	.783	49.2	....	....	302-347
175-200	3.8	27.0	.796	46.3	....	....	347-392
200-225	4.3	31.3	.811	43.0	....	....	392-437
225-250	5.2	36.5	.825	40.0	....	....	437-482
250-275	6.7	43.2	.841	36.8	....	....	482-527
Vacuum distillation at 40 mm.							
Up to 200	3.7	3.7	.865	32.1	41	15	Up to 392
200-225	6.2	9.9	.875	30.2	47	30	392-437
225-250	5.0	14.9	.892	27.1	61	50	437-482
250-275	5.0	19.9	.901	25.6	93	65	482-527
275-300	5.9	25.8	.908	24.3	175	85	527-572

Residuum, 27.4 per cent; distillation loss, 3.6 per cent; carbon residue of residuum, 11.3 per cent; carbon residue of crude, 3.1 per cent.

APPROXIMATE SUMMARY

	Per cent	Specific gravity	°A.P.I.	Viscosity
Light gasoline	7.4	.693	72.7	
Total gasoline and naphtha	27.0	.747	57.9	
Kerosene distillate	9.5	.819	41.3	
Gas oil	14.8	.857	33.6	
Nonviscous lubricating distillate	9.8	.879-.902	29.5-25.4	50-100
Medium lubricating distillate	7.9	.902-.911	25.4-23.8	100-200
Viscous lubricating distillate	..	....	....	Above 200
Residuum	27.4	.978	13.2	
Distillation loss	3.6	....	....	

SAMPLE NO. 27,862

Texas, McElroy Field, Crane-Upton Counties, sample from three wells, sand, Permian lime; depth average, 2,800-2,900 feet; specific gravity, 0.861; A.P.I. gravity, 32.8 degrees; per cent sulphur, 2.40; per cent water, nil; Saybolt Universal viscosity at 70 degrees Fahrenheit, 61 seconds; pour point, below 5 degrees Fahrenheit; Saybolt Universal viscosity at 100 degrees Fahrenheit, 47 seconds; color—greenish black.

DISTILLATION, BUREAU OF MINES, HEMPEL METHOD

Air Distillation — Barometer 742 mm. — First Drop: 31°C. (88°F.)

Temperature Degrees Centigrade	Per cent cut	Sum per cent	Specific gravity cut	Degrees A.P.I. cut	Viscosity at 100°F.	Cloud test °F.	Temperature Degrees Fahrenheit
Up to 50	1.4	1.4 }					Up to 122
50- 75	2.2	3.6 }	.682	76.0	....	....	122-167
75-100	3.7	3.7	.713	67.0	....	....	167-212
100-125	5.4	12.7	.741	59.5	....	....	212-257
125-150	6.3	19.0	.766	53.2	....	....	257-302
150-175	3.5	22.5	.781	49.7	....	....	302-347
175-200	4.1	26.6	.795	46.5	....	....	347-392
200-225	4.6	31.2	.810	43.2	....	....	392-437
225-250	5.0	36.2	.824	40.2	....	....	437-482
250-275	7.2	43.4	.841	36.8	....	....	482-527
Vacuum distillation at 40 mm.							
Up to 200	3.5	3.5	.867	31.7	41	10	Up to 392
200-225	6.0	9.5	.873	30.6	48	30	392-437
225-250	6.0	15.5	.891	27.3	66	50	437-482
250-275	5.0	20.5	.902	25.4	100	70	482-527
275-300	6.7	27.2	.914	23.3	180	90	527-572

Residuum, 25.9 per cent; distillation loss, 3.5 per cent; carbon residue of residuum, 11.2 per cent; carbon residue of crude, 2.9 per cent.

APPROXIMATE SUMMARY

	Per cent	Specific gravity	°A.P.I.	Viscosity
Light gasoline	7.3	.698	71.2	
Total gasoline and naphtha	26.6	.749	57.4	
Karosene distillate	9.6	.817	41.7	
Gas oil	14.5	.856	33.8	
Nonviscous lubricating distillate	10.7	.875-.902	30.2-25.4	50-100
Medium lubricating distillate	7.3	.902-.917	25.4-22.8	100-200
Viscous lubricating distillate	1.9	.917-.920	22.8-22.3	Above 200
Residuum	25.9	.981	12.7	
Distillation loss	3.5	....	....	

SAMPLE NO. 27,863

Texas, McCamey Field, Upton County, composite sample, sand, Permian lime; depth average 1,800-2,300 feet; specific gravity, 0.907; A.P.I. gravity, 24.5 degrees; per cent sulphur, 2.29 per cent water, trace; Saybolt Universal viscosity at 70 degrees Fahrenheit, 225 seconds; pour point, below 5 degrees Fahrenheit; Saybolt Universal viscosity at 100 degrees Fahrenheit, 110 seconds; color—greenish black.

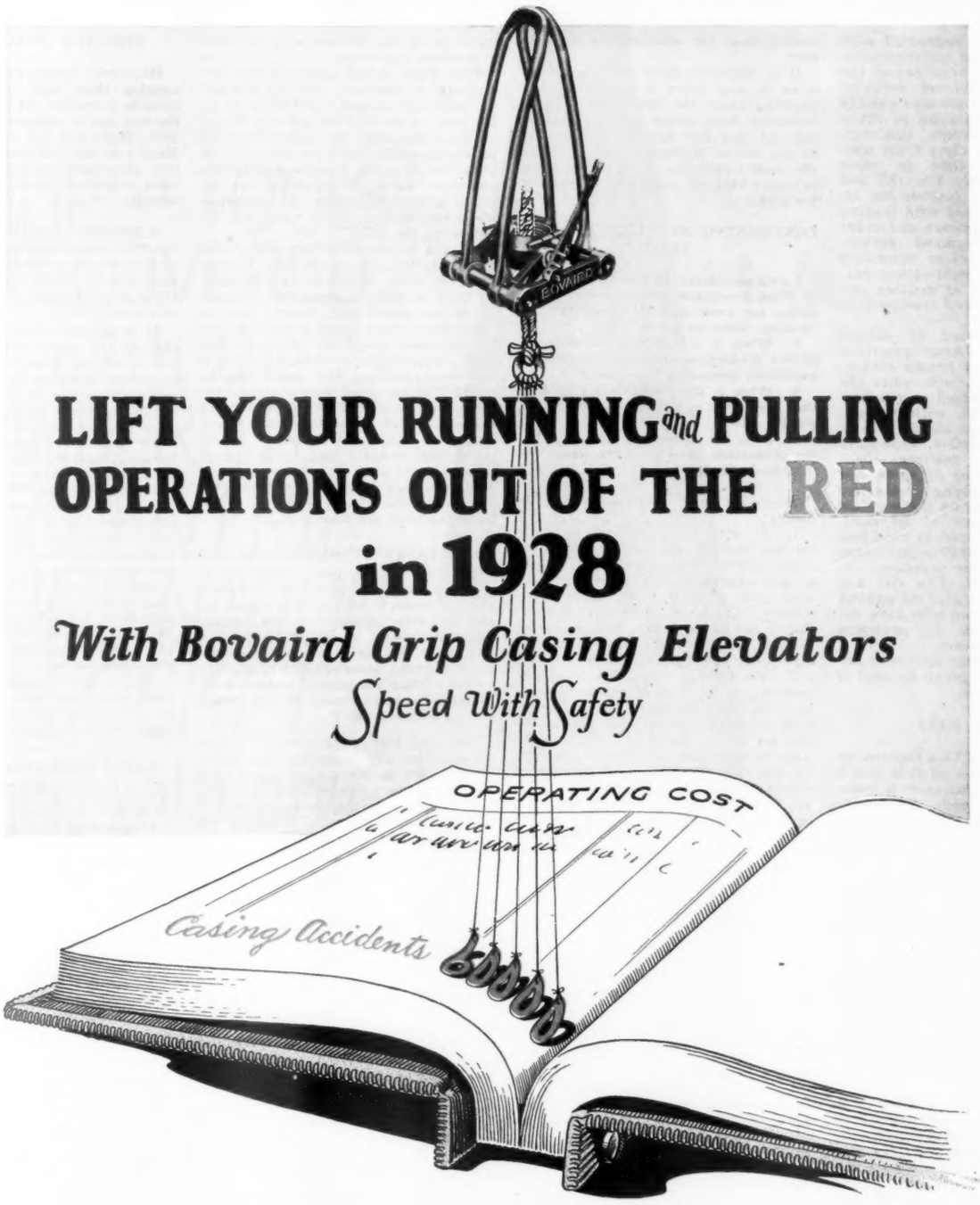
DISTILLATION, BUREAU OF MINES, HEMPEL METHOD

Air Distillation — Barometer 741 mm. — First Drop: 74°C. (165°F.)

Temperature Degrees Centigrade	Per cent cut	Sum per cent	Specific gravity cut	Degrees A.P.I. cut	Viscosity at 100°F.	Cloud test °F.	Temperature Degrees Fahrenheit
Up to 50							Up to 122
50- 75							122-167
75-100	1.6	1.6	.737	60.5	....	....	167-212
100-125	1.4	3.0	.753	56.4	....	....	212-257
125-150	2.9	5.9	.757	55.4	....	....	257-302
150-175	4.5	10.4	.783	49.2	....	....	302-347
175-200	4.1	14.5	.805	44.3	....	....	347-392
200-225	5.0	19.5	.822	40.6	....	....	392-437
225-250	6.7	26.2	.841	36.8	....	....	437-482
250-275	7.3	33.5	.858	33.4	....	....	482-527
Vacuum distillation at 40 mm.							
Up to 200	3.1	3.1	.882	28.9	43	Below 5	Up to 392
200-225	6.8	9.9	.890	27.5	54	Below 5	392-437
225-250	7.4	17.3	.907	24.5	70	10	437-482
250-275	6.4	23.7	.919	22.5	125	30	482-527
275-300	8.8	32.5	.927	21.1	230	50	527-572

Residuum, 34.0 per cent; distillation loss, 0.0 per cent; carbon residue of residuum, 11.7 per cent; carbon residue of crude, 4.0 per cent.

(Continued on Page 89)



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Field Problems and Their Solution

EDITED BY THOMAS F. SMILEY

In order that men connected with the drilling, producing and transporting branches of the petroleum industry may procure quickly a solution of many problems confronting them from time to time in their work, The Oil and Gas Journal has arranged with leading engineers and other recognized authorities to answer questions submitted by readers of this publication pertaining to the work of drilling and producing crude oil and transporting this product.

Everyone is invited to submit questions freely. These questions will be submitted to proper authorities by Mr. Smiley, who edits the page, and answers, based on the best available information, will be published. Each question should give as much detail as possible, especially where it relates to matters where depths of sands, types of sands and operations on adjoining properties would have a bearing on the problem involved. The source of all questions will be considered as confidential and only initials will be published in connection with the question.

In this connection, The Oil and Gas Journal will be glad to publish articles from field men who have devised new methods or practices which are improvements.

In case an immediate answer is important, one will be given by mail if the writer requests it.

IS IT ALL PAY?

Here in Sullivan and Vigo Counties we are trying to get a new oil field, and I am quite sure something good is going to come of it. The wells are slightly more than 2,200 feet deep in the Niagara. From the second to the eighth screw in the lime there are small streaks in which a very small part of sand exists. We are going now in about 85 feet in what appears to be pay, but there has arisen a question as to whether the entire 85 feet is pay. It looks as if it were, but no one seems able to convince all interested. The thing we are anxious about is how can we determine this and how much oil is there in the pay, or how long are the wells likely to pump. There is no particular reason for thinking the pay will not last other than that it is in a lime. The wells will make about 30 bbls. naturally.—G. G. B.

After discussing your problem with men who have drilled in your part of the country it is believed that the production is coming from the small streaks of sand and possibly from the sandy lime streaks. You failed to say whether the streaks of sand were present in the 85 feet drilled below the top of the Niagara. The Halliburton sand tester is suggested as a possible means for determining the amount of pay in the 85 feet drilled below the top of the lime.

When drilling in, the tester may be set first at the top of the lime. Then drill ahead about 5 feet and make a bailer test. This operation may be repeated until the entire pay has been drilled through. Judging from reports, the formations are very compact. Hence the tester should work satisfactorily.

If you do not desire to use the tester, drilling in short stages and determining the fluid rise will give you a line on the productivity of the formations penetrated. It is suggested also that a close check-up be kept on the amount of sand and sandy shale drilled, as these will determine the actual amount of pay, provided the oil is coming from the sand and sandy lime only.

It is impossible from the information given in your letter to state definitely anything about the productivity of the formation from which you are producing, but as a rule tight, compact sands do not become depleted as rapidly as do the looser formations. So it is reasonable to expect that the wells may be pumped for years.

CONCERNING SETTLED PRODUCTION

I own an interest in two flowing wells in West Texas and will appreciate your giving me some desired information or advising where to get it.

1. When is a well considered to be settled production and what factors or conditions determine it as such?

2. What is the market value at this time per barrel of settled production, 29-gravity oil?

3. Does the amount of acreage with the production have a bearing upon the price?—J. M. H.

Answering your questions in their order:

1. A well is considered to have reached settled production when its steady decline from the flush peak shows marked retardation and its daily average, week after week, remains virtually stationary. Absolutely stationary production is not to be looked for, of course, because all properties eventually will cease to be commercially productive.

2. The market value of settled production may be compared with the market value of a stock traded in on the stock exchange. It is what the owner can get for it. It may fluctuate from week to week, like the price of gasoline. Various conditions and prospective conditions have a marked effect on the "bid" and "asked" prices. It would be as futile to attempt to name the market value of settled production in any oil field without knowing the history of recent transactions in it as it would be to try to tell the value of United States Steel common without consulting the current record of sales of that security on the New York Stock Exchange.

Regardless of fluctuations growing out of general business conditions, the market price of oil, etc., certain basic factors are considered in determining the value of settled production. The type of oil produced must be taken into account. Obviously one with a high sulphur content would not be as desirable as one containing little or no sulphur. This is true for several reasons, among which might be mentioned the corrosive effects of such oil on the well and surface equipment, which might necessitate expensive repairs; the fact that such production is less desirable for repressuring, and the fact that the oil of high sulphur content usually does not command as high a price when in competition with other oil.

The depth of the sand is of primary importance, for the lifting costs are dependent upon the lift.

The character of the sand and its record for productivity are also governing factors in determining the economic life of the property. The character of the sand also determines whether repressuring of the sand at some future time may be feasible.

The length of time the wells have produced and the rate of decline in production have a bearing on the probable future production.

Location on the structure should be considered, especially where there is a possibility of the property becoming flooded by encroaching edgewater.

A close scrutiny of the general condition of the wells may show that extensive repair work may be necessary in order to continue operations.

Then there is the matter of how the property is operated; that is, whether the wells are pumped individually or on the jack, or possibly the gas lift. Water problems also affect the market value, as properties making much water are not as attractive buys as those comparatively free from water. This feature has assumed greater importance on properties where repressuring can be resorted to for increasing the yield.

3. The amount of acreage going with the production has a distinct bearing upon the value. Since it costs virtually no more to pump a dozen wells hooked up in one power unit than it does to pump one well, a buyer under ordinary circumstances would be willing to pay more per barrel for settled production if the lease contained 160 acres than he would if it contained only 5 acres. Another thing considered in arriving at the value of settled production is the opportunity for further development. Settled production of eight wells should command a higher price if the lease contained 160 acres than if it contained only 40, because of the greater room for additional wells on the lease.

IMPORTANCE OF MEASURING GAS

I find that some operators using the gas lift measure the gas that comes out and that other operators do not use any measuring device at all. This makes it look as if the use of measuring devices is of doubtful importance. I would like to know what the general opinion is regarding the measurement of gas coming from a well.—J. M. P.

The fact that an increasing number of operators are measuring the output gas of wells on the gas lift would seem to indicate that the information gained is of sufficient importance to warrant the added expense and work. Formerly few companies went to the trouble of measuring the input gas. Today it is the exception rather than the rule not to measure the input gas. The same development is taking place as regards the measurement of gas coming from a well producing on the gas lift. Some difference of opinion exists as to the effect of the gas lift on the amount of oil that may be recovered ultimately when the gas lift is used, some contending that the ultimate production is decreased or at least will be the same as it would if other producing methods, for example pumping, were used. As the amount of gas produced with the oil is the governing factor, it is necessary to know how much gas is actually being produced from the sand. The difference between the input gas volume and the output gas volume is generally accepted as being the volume of gas produced from the formation.

INCREASING GAS PRODUCTION

I have three pumping wells, but am not getting enough gas to operate the gas engines. Is there any way in which I can increase the amount of gas coming from the sand?—J. F. C.

There are several ways in which the gas volume may be increased. The pump barrel may be lowered down in the sand, thus uncovering a part of the sand. This allows the gas to bypass the oil and enter the well. Another method would be to draw off the casinghead gas. However, neither of the two methods is recommended for use, as either will decrease the amount of oil you could recover from the wells. It is suggested that you draw on some outside gas source for your fuel requirements if possible.

TROUBLE WITH CEMENT

Have been having poor success in cementing three wells recently, two of them in cementing off bottom water and the last one in cementing a liner in the well. There was salt water in the wells. Have you any information on the setting of cement in salt water? What other conditions might affect the set of cement?—A. J. O.

It is possible that the cement you used had been stored too long. As cement will deteriorate on standing, it is always a good plan to test it before using by mixing a small amount and noting its setting properties.

It is possible also that gas bubbling through the cement may have prevented proper setting. Some time ago tests were conducted by one of the companies on the setting properties of cement in different mediums. It was found that the comparative retarding effects of oil, salt water, fresh water, and atmosphere were as follows: Atmosphere had the least effect, oil next, fresh water next, and salt water the most retarding effect. The cement samples that were allowed to set in the atmosphere and in oil were hard and dry in 18 hours, and those placed in fresh water and in salt water were still soft and moist at the end of 18 hours. Compressibility tests on samples of the same cement allowed to set in oil, fresh water, salt water, and atmosphere at the end of 48 hours demonstrated that the cement had greatest compressive strength when allowed to set in oil, less when allowed to set in the atmosphere, still less in fresh water, and least in salt water. All the above mentioned tests were conducted with Portland cement.

USING GEOPHYSICAL INSTRUMENTS

I have read with interest all articles on the magnetometer, torsion balance and seismograph. Is it necessary to have scientific training in order to use them or should a high school graduate familiar with oil field work be able to do it?—D. W. M.

Up to the present time only men with the necessary scientific training have been detailed to operate the equipment mentioned in your inquiry. Experimental work is still being carried on with each of the types of instruments, hence it would seem that technical and scientific training is essential to carry on the investigation and field work. The mechanical operation of the instrument in the field could be learned by a man of average intelligence. If you are interested in this work it is suggested that you write to one of the companies engaged in field work. A number of nontechnical men are employed in the working parties and these are in a position to get valuable training.

SEND IT TO THE FORGE SHOP

When the threads on the drill bit are worn and bending I send it to the shop to be recut. Would it pay to send such a tool to the forge shop to have a new pin drawn out?—B. A. M.

It would pay to send the bit to the forge shop and have a new pin drawn out as it would result in a much stronger joint. It is always advisable to take all possible precautions in drilling even though some expense is incurred in doing so as the cost of fishing for tools usually exceeds any normal additional costs required to keep the drilling tools in good shape.

HONEST TOOLS

MORE TOOLS RECOVERED with the HINDERLITER *ECCENTRIC COMBINATION SOCKET* than with any other Fishing Tool

Usage varies from Sucker Rods to the very largest Drilling Tools

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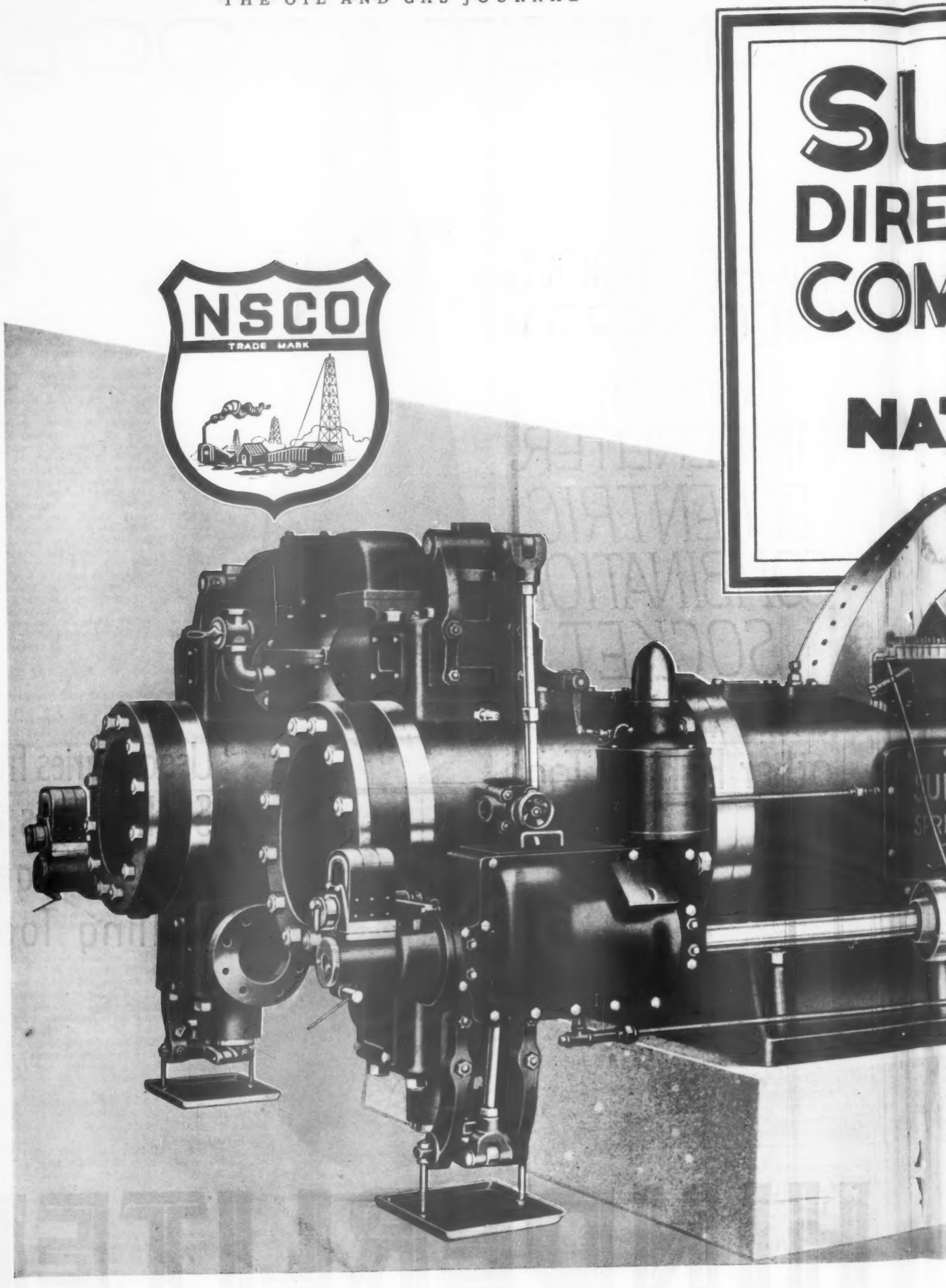
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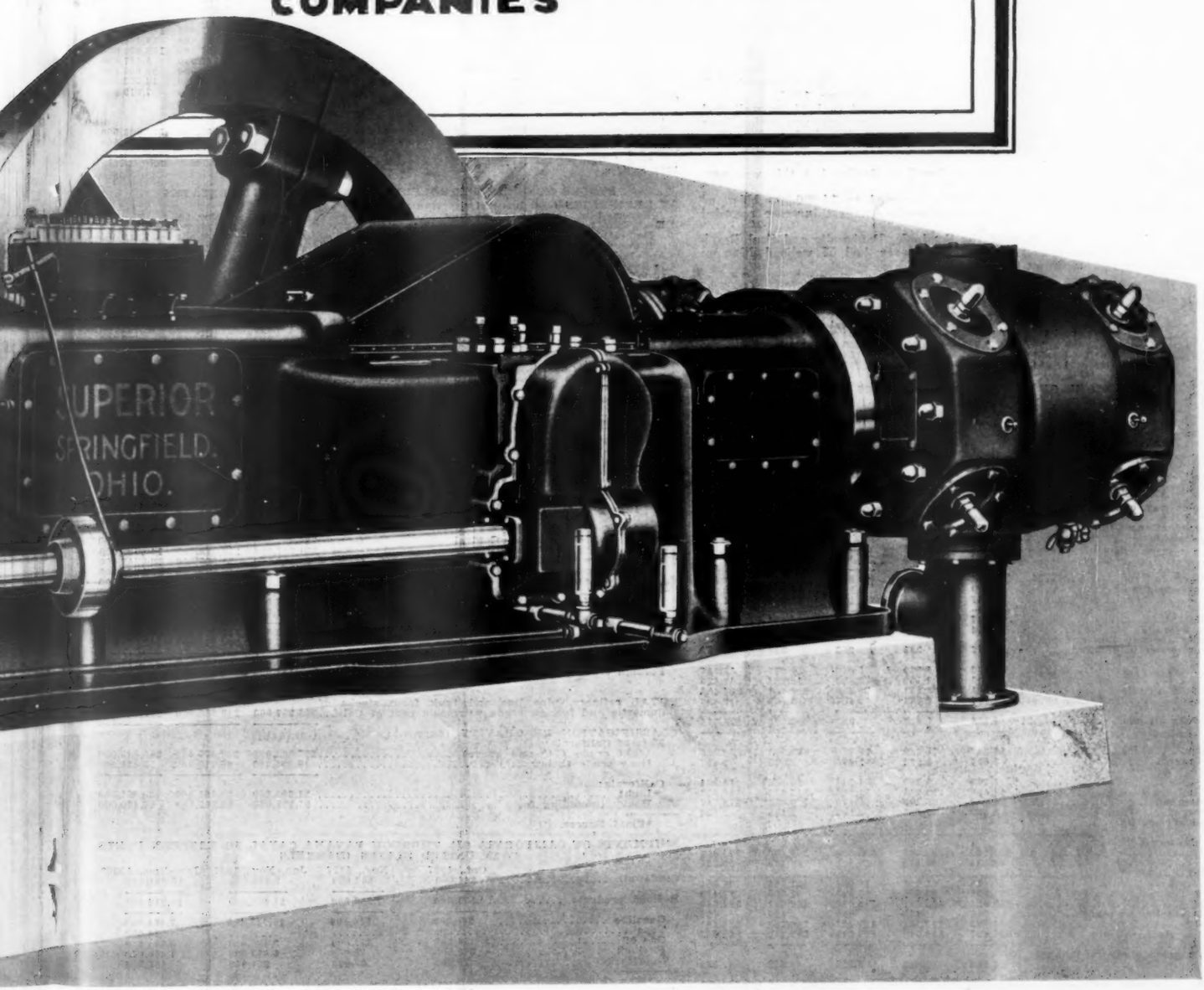


Bureau of Mines Statistics for Month of November, 1927

G. R. Hopkins

The production of crude petroleum in the United States during November, 1927, as reported to the Bureau of Mines, Department of Commerce, by companies which operate gathering lines, amounted to 73,778,000 bbls., a daily average of 2,459,000 bbls. This represents a decrease from the daily average of October, 1927, of 28,000 bbls.

As was the case in October, 1927, the greater part of the decrease in production in November occurred in the two leading producing states—Oklahoma and California. Daily average production in the former fell below the 800,000-bbl. mark for the first time in several months. California registered a 10,000-bbl. decrease in daily average production, though this was more than counterbalanced in December by developments in the new deep zone at Long Beach. Daily average production in Arkansas was 97,400 bbls., the first time in nearly four years that daily average production in this state has fallen below the 100,000-bbl. mark. Texas and the majority of the other states showed little change in output.

Stocks of crude petroleum east of California continued to increase but, as an aftermath of the decline in production, the increase in November was considerably below that of October. These stocks totaled 348,885,000 bbls. on November 30, as compared with 345,357,000 bbls. on hand October 31. As was the case in most previous months, stocks of California light crude decreased and stocks of heavy crude increased.

REFINED PRODUCTS

Although daily average crude runs to stills in November did not quite come up to the record figures of the previous month, an increase in cracking and a new high level in blending of natural gasoline at refineries resulted in a record-breaking daily average output of gasoline of 952,000 bbls., an increase over October of nearly 20,000 bbls.

The indicated daily average domestic demand for gasoline exceeded expectations in November, when it amounted to 813,000 bbls., a decrease from October of only 9,000 bbls. This indicated heavy consumption of gasoline in November may be attributed to the generally fair weather. It exceeded the indicated domestic demand of November, 1926, by 18 per cent. Stocks of gasoline on hand November 30, 1927, amounted to 30,401,000 bbls., an increase over the previous month of approximately 850,000 bbls. This marked the first month since March that gasoline stocks have shown an increase. At the current rate of total demand, these stocks represent 32 days' supply as compared with 31 days' supply on hand the previous month and 44 days' supply on hand a year ago.

Little change was recorded for the minor refined products, except in the indicated domestic demand for kerosene and wax, both of which showed material decreases.

The refinery data of this report were compiled from schedules of 322 refineries, with an aggregate daily crude oil capacity of 2,871,000 bbls. These refineries operated during November, 1927, at 81 per cent of their recorded capacity, as compared with 329 refineries operating at 80 per cent of their capacity in October, 1927.

Production in the Seminole Field in November continued to hold up well and again registered the small decline of only 5,000 bbls. in daily average production from the previous month. A considerable number of wells were shot during November, the increased flow being instrumental in maintaining the production at above the 400,000-bbl. per day mark.

The Panhandle and Seal Beach Fields continued to decline but this was partially counterbalanced by an increase at Long Beach.

Stocks at Seminole on November 30, 1927, amounted to 14,690,000 bbls., as compared with 13,809,000 bbls. the previous month—the smallest increase recorded for some time.

A noticeable slowing up in drilling at the Seminole, Panhandle and Seal Beach Fields was apparent in November. Long Beach, however, had 57 wells drilling on November 30, 1927, as against 30 on October 31, 1927.

PRODUCTION AND GRAVITY

(Barrels of 42 U. S. gallons)

	Oct., 1927 Total	Oct., 1927 Dly. Av.	Nov., 1927 Total	Nov., 1927 Dly. Av.	Nov., 1926 Total	Nov., 1926 Dly. Av.	Average Gravity
Seminole	13,210,000	426,000	12,641,000	421,000	3,464,000	115,000	41.0
Panhandle	2,775,000	90,000	2,525,000	84,000	4,530,000	151,000	36.0
Seal Beach	1,880,000	61,000	1,500,000	50,000	153,000	5,000	24.0
Long Beach	2,915,000	94,000	3,050,000	102,000	2,865,000	96,000	26 0

RECORD OF WELLS, NOVEMBER, 1927

(Barrels of 42 U. S. gallons)

	Completions Oil	Gas	Dry	Total Initial Prod.	Average Initial Prod.	Drilling Nov. 30
Seminole	99	1	29	76,100	800	220
Panhandle	16	3	7	4,000	300	134
Seal Beach	2	..	..	500	200	7
Long Beach	5	..	..	15,200	3,000	57

ANALYSIS OF SUPPLY AND DEMAND OF ALL OILS

(Includes wax, coke and asphalt in thousands of barrels of 42 U. S. gallons)

	October, 1927	Nov., 1927	Nov., 1926	Jan.-Nov., 1927	Jn.-Nov., 1926
NEW SUPPLY:					
Domestic production:					
Crude petroleum:					
Light	68,037	65,378	57,720	718,365	573,506
Heavy	9,044	8,400	12,171	101,962	124,743
Total crude	77,081	73,778	69,891	820,327	698,249
Natural-gas gasoline	3,419	3,410	2,967	35,239	29,205
Benzol	217	205	179	2,351	1,936
Total	80,717	77,393	73,037	857,917	729,390
Daily average	2,604	2,580	2,435	2,569	2,184
Excess of daily average domestic production over domestic demand	367	355	253	384	50
Imports:					
Crude	4,633	5,339	5,043	51,947	55,395
Refined	1,041	1,159	1,619	12,597	19,620
Total new supply all oils	86,391	83,891	79,699	922,461	804,405
Daily average	2,787	2,796	2,657	2,762	2,408
Change in stocks all oils	4,048	5,222	921	62,552	*28,318
DEMAND:					
Total demand	82,343	78,669	78,778	859,909	832,723
Daily average	2,656	2,622	2,626	2,575	2,493
Exports:†					
Crude	1,539	1,280	1,344	14,126	14,124
Refined	11,458	10,641	11,964	115,833	105,852
Domestic demand	69,346	66,748	65,470	729,950	712,747
Dail average	2,237	2,225	2,182	2,185	2,134
STOCKS (end of month):					
Crude:					
East of California:‡					
Light	297,263	300,475	223,828	300,475	223,828
Heavy	48,094	48,410	53,321	48,410	53,321
California:					
Light	21,609	21,191	30,051	21,191	30,051
Heavy§	91,858	92,555	87,440	92,555	87,440
Total crude	458,824	462,631	394,640	462,631	394,640
Natural-gas gasoline at plants	781	820	462	820	462
To al refined	117,822	119,198	121,441	119,198	121,441
Grand total stocks all oils	577,427	582,649	516,543	582,649	516,543
Bunker oil (included above in domestic demand)	4,594	3,953	3,953	45,629	42,596

*Decrease. †Includes shipments to noncontiguous territories. ‡Exclusive of producers' stocks. §Includes fuel oil.

STOCKS AT SEMINOLE

(Barrels of 42 U. S. gallons)

	Oct. 31, 1927	Nov. 30, 1927	Nov. 30, 1926
Producers' stocks		449,000	479,000
Tank farm stocks	13,360,000	14,211,000	
Total stocks	13,809,000	14,690,000	

PRODUCTION OF CRUDE PETROLEUM BY FIELDS AND STATES WITH CLASSIFICATION BY GRAVITY

(Barrels of 42 U. S. gallons)

	October, 1927 Total	October, 1927 Dly. Av.	November, 1927 Total	November, 1927 Dly. Av.	Jan.-Nov., 1927	Jan.-Nov., 1926*
FIELD:						
Appalachian	2,589,000	83,500	2,525,000	84,200	28,017,000	26,125,000
Lima-Indiana	153,000	5,000	131,000	4,400	1,704,000	1,874,000
Michigan	38,000	1,200	33,000	1,100	402,000	68,000
Ill.-S. W. Ind.	621,000	20,000	625,000	20,800	7,156,000	7,728,000
Mid-Continent	47,910,000	1,545,500	45,861,000	1,528,700	497,843,000	382,932,000
Gulf Coast	4,023,000	129,800	3,801,000	126,700	45,672,000	39,901,000
Rocky Mountain	2,298,000	74,100	2,286,000	76,200	27,720,000	35,343,000
California	19,449,000	627,400	18,516,000	617,200	211,813,000	204,278,000
Total U. S.	77,081,000	2,486,500	73,778,000	2,459,300	820,327,000	698,249,000
STATE:						
Arkansas	3,165,000	102,100	2,923,000	97,400	37,372,000	54,199,000
California	19,449,000	627,400	18,516,000	617,200	211,813,000	204,278,000
Colorado	217,000	7,000	219,000	7,300	2,570,000	2,525,000
Illinois	555,000	17,900	561,000	18,700	6,495,000	7,129,000
Indiana	75,000	2,400	72,000	2,400	778,000	738,000
Southwestern	66,000	2,100	64,000	2,100	661,000	599,000
Northeastern	9,000	300	8,000	300	117,000	139,000
Kansas	3,313,000	106,900	3,260,000	108,700	37,475,000	37,914,000
Kentucky	590,000	19,000	586,000	19,600	6,173,000	5,758,000
Louisiana	1,745,000	56,300	1,634,000	54,500	19,340,000	21,260,000
Gulf Coast	234,000	7,600	245,000	8,200	2,776,000	3,815,000
Rest of state	1,511,000	48,700	1,389,000	46,300	16,564,000	17,445,000
Michigan	38,000	1,200	33,000	1,100	402,000	68,000
Montana	404,000	13,000	361,000	12,000	4,704,000	7,360,000
New Mexico	84,000	2,100	77,000	2,600	1,123,000	1,498,000
New York	189,000	6,100	187,000	6,200	2,048,000	1,775,000
Ohio	622,000	20,100	591,000	19,700	6,965,000	6,656,000
Cent. and East.	478,000	15,400	468,000	15,600	5,378,000	4,921,000
Northwestern	144,000	4,700	123,000	4,100	1,587,000	1,735,000
Oklahoma	24,810,000	800,300	23,689,000	789,600	254,965,000	161,344,000
Osage County	1,789,000	57,700	1,796,000	59,800	21,779,000	23,142,000
Rest of sta e	23,021,000	742,600	21,893,000	729,800	233,186,000	138,202,000
Pennsylvania	826,000	26,700	800,000	26,700	8,814,000	8,204,000
Tennessee	6,000	200	6,000	200	56,000	40,000
Texas	18,900,000	609,700	18,156,000	605,200	194,362,000	148,116,000
Gulf Coast	3,789,000	122,200	3,556,000	118,500	42,896,000	36,086,000
Rest of state	15,111,000	487,500	14,600,000	486,700	151,466,000	112,030,000
W. Virginia	500,000	16,100	478,000	15,900	5,542,000	5,427,000
Wyoming	1,613,000	52,000	1,629,000	54,300	19,323,000	23,952,000
Salt Creek	1,064,000	32,400	1,065,000	35,500	13,071,000	16,773,000
Rest of state	609,000	19,600	564,000	18,800	6,252,000	7,179,000
CLASSIFICATION BY GRAVITY (approx.):						
Light crude	68,037,000	2,194,800	65,378,000	2,179,300	718,365,000	573,506,000
Heavy crude	9,044,000	291,700	8,400,000	280,000	101,962,000	124,743,000

*Final figures: total includes 3,600,000 bbls. consumed on leases, etc., not included in 1927 figures.

STOCKS OF CRUDE PETROLEUM HELD IN THE UNITED STATES

		Oct. 31, 1927	Nov. 30, 1927	Nov. 30, 1926*
AT REFINERIES (and in coastwise transit thereto.) Reported by location of s.orage:				
East Coast:				
Domestic		8,772,000	8,045,000	7,913,000
Foreign		2,675,000	2,726,000	2,354,000
Appalachian		1,740,000	1,822,000	1,664,000
Indiana, Illinois, etc.		2,737,000	2,692,000	2,058,000
Oklahoma, Kansas, etc.		4,850,000	4,924,000	2,548,000
Texas:				
Inland		1,677,000	1,656,000	952,000
Gulf Coast:				
Domestic		7,473,000	7,653,000	7,903,000
Foreign		174,000	204,000	206,000
Arkansas and Inland Louisiana		402,000	457,000	638,000
Louisiana Gulf Coast:				
Domestic		5,643,000	6,104,000	7,067,000
Foreign		1,043,000	1,150,000	761,000
Rocky Mountain		1,368,000	1,394,000	1,501,000
Total east of California		38,554,000	38,827,000	35,565,000
ELSEWHERE THAN AT REFINERIES:				
Domestic—Reported by field of origin:				
Appalachian:				
N. Y., Pa., W. Va., Eastern and Central Ohio:	Gross	6,869,000	6,797,000	6,864,000
	Net	6,552,000	6,501,000	6,577,000
Kentucky:	Gross	1,212,000	1,216,000	1,221,000
	Net	1,081,000	1,090,000	1,090,000
Lima-Indiana:	Gross	1,230,000	1,263,000	900,000
	Net	1,077,000	1,109,000	689,000
Illinois-S. W. Indiana:	Gross	12,626,000	12,708,000	12,216,000
	Net	12,100,000	12,189,000	11,731,000
Mid-Continent:				
Oklahoma, Kansas, Central	Gross	226,506,000	229,754,000	153,475,000
North and West Texas:	Net	214,707,000	218,378,000	140,925,000
Northern Louisiana and Arkansas:	Gross	28,190,000	28,005,000	34,743,000
	Net	25,628,000	25,577,000	32,376,000
Gulf Coast:	Gross	18,098,000	18,067,000	19,339,000
	Net	17,679,000	17,619,000	18,965,000
Rocky Mountain:	Gross	27,727,000	27,298,000	28,620,000
	Net	27,681,000	27,256,000	28,571,000
TOTAL pipe line and tank farm stocks east of California:	Gross	322,458,000	325,048,000	257,378,000
	Net	306,505,000	309,719,000	240,924,000
Foreign crude petroleum on Atlantic Coast		100,000	106,000	105,000
Foreign crude petroleum on Gulf Coast		198,000	233,000	555,000
		298,000	339,000	660,000
TOTAL refinery, pipe line and tank farm stocks of domestic and foreign crude petroleum east of Calif.		345,357,000	348,885,000	277,149,000
CLASSIFICATION BY GRAVITY (approx.):				
East of California:				
Light crude (24° and above)		297,263,000	300,475,000	223,828,000
Heay crude (below 24°)		48,094,000	48,410,000	53,321,000
California:				
Light		21,609,000	21,191,000	30,051,000
Heavy (including fuel)		91,858,000	92,555,000	87,440,000

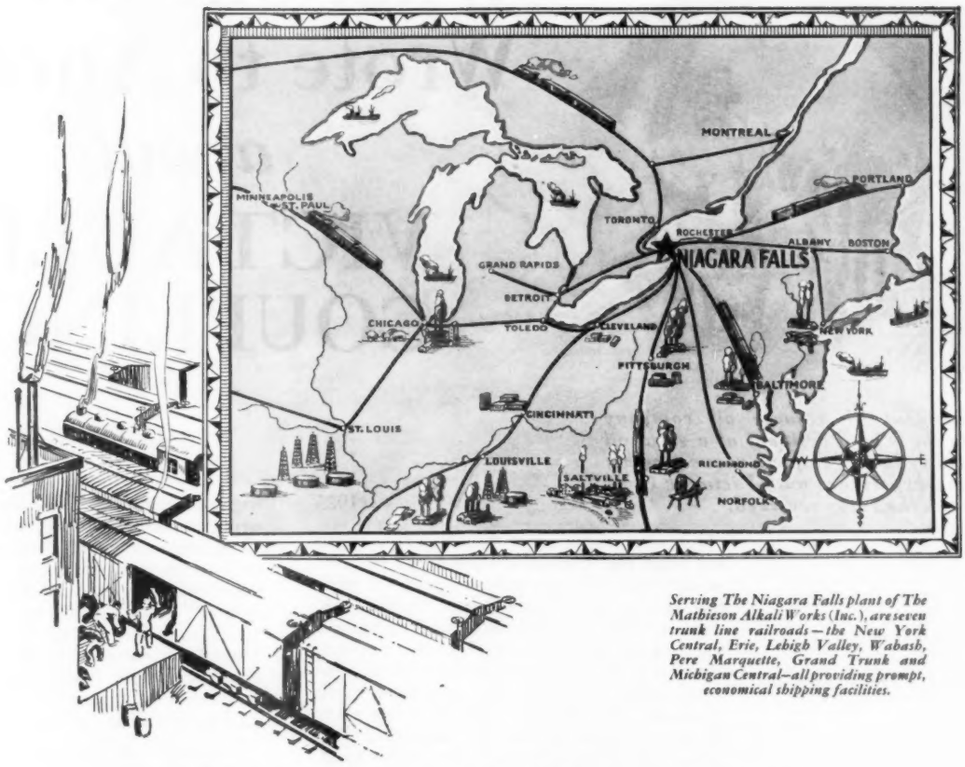
*Final figures.

SHIPMENTS OF CALIFORNIA OIL THROUGH PANAMA CANAL TO EASTERN PORTS IN UNITED STATES (BARRELS

	Oct., 1927	Nov., 1927	Jan.-Nov., 1927	Jan.-Nov., 1926*
Crude oil	844,000	864,000	9,805,000	10,681,000
Refined products	1,571,000	1,466,000	21,461,000	20,910,030
Gasoline	984,000	940,000	10,741,000	7,464,000
Tops	.....	.....	.....	224,000
Gas oil	154,000	382,000	3,486,000	5,334,000
Fuel oil	363,000	75,000	6,880,000	7,400,000
Lubricants	70,000	69,000	354,000	488,000

*Final figures.

(Continued on Page 89)



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DEAL DIRECT WITH THE MANUFACTURER

What one Oil Man Wrote to Another *about* VICTAULIC COUPLINGS

THE President of a large oil company wrote to the Vice President of a great oil producing and refining company requesting his opinion of and experience with Victaulic Couplings. Here is the reply received.

1925

"Our first experience was in 1921, when we tried out Victaulic Couplings on a 4″ water line and we were impressed with the efficiency of this joint. Since that time we have continued and extended the use of this joint and at the present time, we have approximately two hundred miles of field line equipped with Victaulic Couplings. These lines vary from 4″ diameter to 12″ diameter and from two miles to twenty-five miles long.

"We have had these joints in operation for over four years and have found them very satisfactory indeed. We have used these joints on fresh water lines, salt water lines, hot salt water, gasoline, gas, crude oil—in fact for all purposes around a producing field and a refinery. *All our pipe is now ordered with Victaulic Couplings.*

"In the early part of this year we constructed a 12″ gas line to pump residue gas from the compressors in the field to the refinery, a distance of eight miles, and Victaulic Couplings were used in the construction of this line and are giving good service. All our main 10″ gathering system is equipped with Victaulic Couplings carrying a pressure of 200 lbs. and over, and we have had no trouble with these joints. One water line, which is a 10″ line, twenty-five miles long and supplies water to the whole field, working under pressure of 400 lbs., is entirely equipped with Victaulic Couplings. It has been in operation eighteen months and is standing up well.

"Formerly we had to use a large number of expansion bends to allow for expansion and contraction caused by the large differences in temperature during the twenty-four hours, whereas, owing to the flexibility of the lines connected with Victaulic Couplings, we have cut out the use of expansion bends entirely.

"We have subjected our lines to very severe pressure tests and they failed to show any signs of leakage whatever."

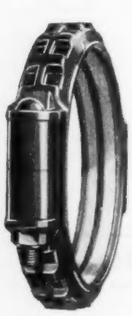
1927

This company has adopted Victaulic Couplings as standard equipment and now has many hundreds of miles of pipe lines equipped with Victaulic Couplings.

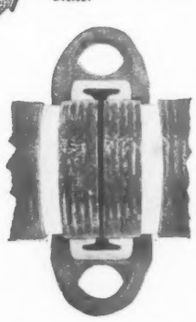
VICTAULIC COMPANY OF AMERICA
26 Broadway New York

Western Distributors

SMITH SEPARATOR COMPANY
Tulsa Okla.



For detailed information on Victaulic Couplings for all sizes and kinds of pipe and for all pressures, for typical installations and lists of uses and users, write for Bulletin No. 1.



VICTAULIC

REG. U.S. PAT. OFF.

The all-purpose pipe coupling ***Flexible, Leak-proof Pipe Couplings*** *"For every joint" on the line"*

FOR CRUDE OIL, GAS, WATER, SEWAGE, COMPRESSED AIR, ETC.

IMPORTS AND EXPORTS OF CRUDE PETROLEUM (BARRELS)
(From Bureau of Foreign and Domestic Commerce)

	October, 1927 Total	October, 1927 Daily Av.	November, 1927 Total	November, 1927 Daily Av.	Jan.-Nov., 1927	Jan.-Nov., 1926*
Imports	4,633,000	149,500	5,339,000	178,000	51,947,000	55,395,000
From Mexico	1,503,000	48,500	1,864,000	62,100	24,692,000	38,145,000
From Venezuela	2,260,000	72,900	2,748,000	91,600	17,822,000	10,713,000
From Colombia	797,000	25,700	727,000	24,300	6,887,000	2,704,000
From other countries	73,000	2,400	.....	.....	3,546,000	3,833,000
Exports	1,539,000	49,600	1,280,000	42,700	14,126,000	14,124,000
Domestic crude oil:						
To Canada	1,271,000	41,000	998,000	33,300	11,624,000	11,833,000
To other countries	268,000	8,600	282,000	9,400	2,502,000	2,290,000
Foreign crude oil	.....	.....	.....	.....	.....	1,000

Note: No shipments to territories during November.

INDICATED DELIVERIES OF CRUDE PETROLEUM, EXCLUSIVE OF CALIFORNIA GRADES, TO DOMESTIC CONSUMERS (BARRELS)

	October, 1927 Total	October, 1927 Daily Av.	November, 1927 Total	November, 1927 Daily Av.	Jan.-Nov., 1927	Jan.-Nov., 1926*
Domestic petroleum by fields of origin:						
Appalachian	2,823,000	91,100	2,567,000	85,600	28,216,000	27,013,000
Lima-Indiana	83,000	2,700	99,000	3,300	1,261,000	2,159,000
Michigan	38,000	1,200	33,000	1,100	402,000	68,000
Ill. & S. W. Ind.	654,000	20,400	536,000	17,900	6,737,000	6,589,000
Mid-Continent	42,515,000	1,371,400	42,241,000	1,408,000	427,736,000	407,177,000
Gulf Coast	4,110,000	132,600	3,861,000	128,700	48,084,000	40,178,000
Rocky Mountain	2,216,000	71,500	2,711,000	90,400	28,539,000	35,624,000
Deliveries and exports	52,419,000	1,690,900	52,048,000	1,735,000	540,975,000	518,808,000
Deliveries	51,305,000	1,655,000	51,093,000	1,703,100	531,524,000	509,597,000
Foreign petroleum	4,571,00	147,500	5,298,000	176,600	52,217,000	55,141,000
Deliveries of domestic and foreign petroleum	55,876,000	1,802,500	56,391,000	1,879,700	583,741,000	564,738,000

COMPARATIVE ANALYSES
(Thousands of barrels of 42 U. S. gallons)

	Product'n* Total	Product'n* Dy. Av.	Imports† Total	Imports† Dy. Av.	Exports‡ Total	Exports‡ Dy. Av.	Stocks end of period	Domestic Demand Total	Domestic Demand Dy. Av.
Crude petroleum:									
October, 1927	72,141	2,327	4,633	149	1,539	50	‡366,966	.....	.....
November, 1927	69,792	2,326	5,339	178	1,280	43	‡370,076	.....	.....
Jan.-Nov., 1927	761,344	2,279	51,947	156	14,126	42	‡370,076	.....	.....
November, 1926	67,641	2,255	5,043	168	1,344	45	‡307,200	.....	.....
Jan.-Nov., 1926	709,780	2,125	55,395	166	14,124	42	‡307,200	.....	.....
Gasoline:									
October, 1927	28,903	932	365	12	3,959	128	29,550	25,497	822
November, 1927	28,558	952	417	14	3,724	124	30,401	24,400	813
Jan.-Nov., 1927	302,155	905	4,721	14	41,288	124	30,401	274,210	821
November, 1926	26,245	875	456	15	3,834	128	35,905	20,674	689
Jan.-Nov., 1926	272,236	815	5,088	15	39,900	119	35,905	240,394	720
Kerosene:									
October, 1927	4,884	158	1	...	2,211	71	7,325	3,469	112
November, 1927	4,824	161	27	1	1 821	61	7,841	2,514	84
Jan.-Nov., 1927	51,245	153	40	...	18,243	55	7,841	33,776	101
November, 1926	5,357	179	.....	.....	2,029	68	8,060	3,506	117
Jan.-Nov., 1926	56,369	169	74	...	20,401	61	8,060	35,103	105
Lubricants:									
October, 1927	2,757	89	1	...	839	27	7,584	1,782	57
November, 1927	2,477	83	.....	...	798	27	7,524	1,739	58
Jan.-Nov., 1927	28,920	87	7	...	9,008	27	7,524	19,971	60
November, 1926	2,724	91	1	...	821	27	7,620	1,721	57
Jan.-Nov., 1926	29,594	89	32	...	8,518	26	7,620	20,741	62
Wax (thousands of pounds):									
October, 1927	49,476	1,596	887	29	28,342	914	170,367	21,826	704
November, 1927	48,146	1,605	3,132	104	32,541	1,085	171,700	17,404	580
Jan.-Nov., 1927	530,308	1,588	18,556	56	308,767	924	171,700	253,728	760
November, 1926	54,678	1,823	674	22	25,387	846	177,054	20,836	695
Jan.-Nov., 1926	589,840	1,766	8,794	26	307,174	920	177,054	230,797	691
Gas oil and fuel oil:									
October, 1927	34,045	1,098	667	22	4,206	136	$125,049	.....	.....
November, 1927	32,594	1,086	704	23	4,013	134	$126,192	.....	.....
Jan.-Nov., 1927	359,313	1,076	7,672	23	43,511	130	$126,192	.....	.....
November, 1926	31,624	1,054	1,111	37	5,019	167	$114,299	.....	.....
Jan.-Nov., 1926	331,819	993	13,668	41	34,521	103	$114,299	.....	.....

*Figures in this column for crude petroleum are runs to stills. †From Bureau of Foreign & Domestic Commerce, subject to revision. Exports, except for wax, include shipments to Alaska, Hawaii and Porto Rico. ‡Includes California light. §Includes California heavy.

RUNS TO STILLS AND OUTPUT OF REFINERIES IN THE UNITED STATES, NOVEMBER, 1927

	Crude oil—Domestic	Crude oil—Foreign	Unfinished oils	Natural-gas gasoline blended	Total input (Bbls.)
East Coast	9,127,000	4,278,000	585,000	160,000	14,150,000
Appalachian	2,365,000	.....	98,000	63,000	2,526,000
Indiana, Illinois, etc.	6,716,000	.....	483,000	184,000	7,383,000
Oklahoma, Kansas, etc.	8,342,000	.....	249,000	369,000	8,960,000
Texas	14,325,000	21,000	563,000	557,000	15,466,000
Louisiana and Arkansas	4,857,000	456,000	205,000	419,000	5,937,000
Rocky Mountain	2,030,000	.....	550,000	114,000	2,694,000
California	17,275,000	.....	*423,000	894,000	18,592,000
United States total	65,037,000	4,755,000	3,156,000	2,760,000	75,708,000
Daily average, 11/27	2,167,900	158,500	105,200	92,000	2,523,600
Daily average, 10/27	2,158,200	169,000	106,300	87,900	2,521,400
Texas Gulf Coast	11,027,000	21,000	405,000	482,000	11,935,000
Louisiana Gulf Coast	3,384,000	456,000	86,000	337,000	4,263,000

Output and losses—	Gasoline (Bbls.)	Kerosene (Bbls.)	Gas oil and fuel oil (Bbls.)	Lubricants (Bbls.)	Wax (Lbs.)
East Coast	4,199,000	937,000	6,832,000	668,000	18,086,000
Appalachian	1,675,000	291,000	548,000	377,000	7,997,000
Indiana, Illinois, etc.	4,051,000	454,000	1,857,000	314,000	5,291,000
Oklahoma, Kansas, etc.	4,575,000	774,000	2,733,000	203,000	3,969,000
Texas	6,233,000	1,233,000	6,235,000	603,000	5,664,000
Louisiana and Arkansas	1,994,000	521,000	2,250,000	48,000	4,009,000
Rocky Mountain	1,209,000	178,000	644,000	45,000	3,130,000
California	5,222,000	436,000	11,495,000	219,000	.....
United States total	28,558,000	4,824,000	32,594,000	2,477,000	†48,146,000
Daily average, 11/27	951,900	160,800	1,086,500	82,600	1,604,900
Daily average, 10/27	932,400	157,500	1,098,200	88,900	1,596,000
Texas Gulf Coast	4,917,000	1,005,000	4,650,000	568,000	5,391,000
Louisiana Gulf Coast	1,599,000	461,000	1,205,000	48,000	4,009,000

Output and losses (con't.)—	Coke (tons)	Asphalt (tons)	Other finished products (bbls)	Unfinished products (bbls.)	Losses (bbls.)
East Coast	11,200	138,700	81,000	152,000	396,000
Appalachian	2,600	.....	28,000	45,000	119,000
Indiana, Illinois, etc.	28,600	33,400	139,000	84,000	133,000
Oklahoma, Kansas, etc.	20,900	500	59,000	93,000	392,000
Texas	21,700	26,400	4,000	278,000	620,000
Louisiana and Arkansas	11,000	45,100	155,000	576,000	79,000
Rocky Mountain	6,300	2,600	9,000	491,000	52,000
California	.....	43,300	131,000	492,000	354,000
United States total	†102,300	†290,000	606,000	2,211,000	2,145,000
Daily average, 11/27	3,400	9,700	20,200	73,700	71,500
Daily average, 10/27	3,300	10,700	21,400	63,800	77,600
Texas Gulf Coast	18,900	26,400	1,000	28,000	519,000
Louisiana Gulf Coast	10,700	43,300	151,000	466,000	30,000

*Includes 226,000 bbls. net tops rerun. †Wax, coke, and asphalt equivalent to 279.9 pounds per barrel and 5.07 and 5.52 bbls. per ton, respectively.

NUMBER OF PRODUCING OIL WELLS COMPLETED†

October, 1927	November, 1927	Jan.-Nov., 1927	Jan.-Nov., 1926*
1,086	1,044	13,775	17,453

†For states east of California, from The Oil and Gas Journal; for California, from the American Petroleum Institute.

GASOLINE PRODUCTION BY THE VARIOUS METHODS—NOVEMBER, 1927
(Barrels)

	Straight run	%	Cracked	%	Natural-gas	%	Total
East Coast	2,514,000	60	1,525,000	36	160,000	4	4,199,000
Appalachian	743,000	69	269,000	25	63,000	6	1,075,000
Indiana, Illinois, etc.	2,053,000	51	1,814,000	45	184,000	4	4,051,000
Oklahoma, Kansas, etc.	2,725,000	60	1,481,000	32	369,000	8	4,575,000
Texas	3,338,000	54	2,338,000	37	557,000	9	6,233,000
Louisiana and Arkansas	1,027,000	52	548,000	27	419,000	21	1,994,000
Rocky Mountain	589,000	49	506,000	42	114,000	9	1,209,000
California	3,624,000	69	499,000	10	*1,099,000	21	5,222,000
United States total	16,613,000	58	8,980,000	32	2,965,000	10	28,558,000
U. S. total, 10/27	16,934,000	59	9,035,000	31	2,934,000	10	28,903,000
U. S. total, 1927	181,316,000	60	92,057,000	30	28,782,000	10	302,155,000
Gulf Coast	3,162,000	48	2,535,000	39	819,000	13	6,516,000

*Includes natural-gas gasoline run through pipe lines.

STOCKS HELD BY THE REFINING COMPANIES IN THE UNITED STATES, NOVEMBER 30, 1927

	Gasoline (bbls.)	Kerosene (bbls.)	Gas oil and fuel oil (bbls.)	Lubricants (bbls.)
East Coast	4,561,000	1,557,000	10,804,000	2,522,000
Appalachian	822,000	300,000	1,065,000	1,063,000
Indiana, Illinois, etc.	3,251,000	932,000	1,938,000	780,000
Oklahoma, Kansas, etc.	2,528,000	540,000	6,066,000	471,000
Texas	4,625,000	1,521,000	9,686,000	1,622,000
Louisiana and Arkansas	1,424,000	890,000	3,419,000	101,000
Rocky Mountain	1,336,000	266,000	659,000	112,000
California	11,854,000	1,835,000	.....	853,000
United States total	30,401,000	7,841,000	*33,637,000	7,524,000
United States total 10/31/27	29,550,000	7,325,000	*33,191,000	7,584,000
Texas Gulf Coast	3,925,000	1,415,000	8,067,000	1,570,000
Louisiana Gulf Coast	1,332,000	866,000	2,849,000	101,000

	Wax (lbs.)	Coke (tons)	Asphalt (tons)	Other finished products (bbls.)	Unfinished oils (bbls.)
East Coast	63,277,000	33,700	77,900	100,000	6,780,000
Appalachian	24,467,000	1,200	900	111,000	1,183,000
Indiana, Illinois, etc.	14,094,000	34,200	20,800	323,000	3,194,000
Oklahoma, Kansas, etc.	5,053,000	58,300	1,700	83,000	2,089,000
Texas	10,469,000	80,000	8,300	10,000	3,288,000
Louisiana and Arkansas	42,102,000	64,000	26,100	67,000	1,860,000
Rocky Mountain	12,180,000	77,800	9,400	25,000	1,827,000
California	58,000	.....	51,100	401,000	†8,388,000
United States total	171,700,000	349,200	196,200	1,120,000	35,209,000
U. S. total, 10/31/27	170,367,000	331,300	189,400	960,000	35,874,000
Texas Gulf Coast	10,326,000	66,800	8,300	4,000	8,204,000
Louisiana Gulf Coast	42,102,000	61,400	25,600	66,000	1,467,000

*East of California. †Includes 1,765,000 bbls. tops in storage.

NATURAL-GAS GASOLINE

The natural gasoline industry performed as usual during November, 1927, when another new high mark for output was established. The total output for that month amounted to 143,200,000 gallons, which, while 400,000 gallons below the total of October, 1927, represents an increase over the latter in daily average production of 140,000 gallons. The output of November, 1927, was also 15 per cent greater than that of November, 1926. Of the total production 115,900,000 gallons, or 81 per cent, was reported as having been blended at refineries, 8,600,000 gallons, or 6 per cent was turned into pipe lines in California, 3,500,000 gallons was blended at the natural gasoline plants or sold by them to jobbers, 1,600,000 gallons was added to stocks, leaving 13,600,000 gallons, or 9 per cent for losses and quantities not accounted for. The latter figure will probably be somewhat reduced when the final figures are compiled.

Stocks of natural gasoline at the plants November 30, 1927, amounted to 34,440,000 gallons, a moderate increase over the previous month.

(Thousands of gallons)

	Natural-Gas Gasoline—Production* Oct., 1927	Production* Nov., 1927	Production* Nov., 1926	(1) Oct., 1927	(1) Nov., 1927	Blended Motor Fuel, Nov., 1927 (2)	(3)	(4)
Appalachian	7,400	8,300	9,500	2,813	2,918	113	158	247
Ind., Ill., etc.	1,400	1,400	1,500	276	294	34	1	14
Okla., Kans., etc.	53,000	53,700	44,200	17,172	17,774	1,844	2,877	726
Texas	27,600	27,500	22,500	9,615	10,422	353	499	117
Louisiana and Arkansas	6,900	6,700	6,800	1,011	1,314	269	296	45
Rocky Mountain	3,800	3,900	3,700	575	469	86	26	107
Total east of California	100,100	101,500	88,200	31,462	33,191	2,699	3,857	1,256
California	43,500	41,700	36,400	1,335	1,249	Not Avail.		9
Total United States	143,600	143,200	124,600	32,797	34,440	.....	.....	1,265
Daily average	4,630	4,770	4,150	.....	.....	.....	.....	.....

*Approximately 97 per cent net production; 3 per cent gross. (1) Stocks end of month. (2) Natural-gas gasoline used. (3) Naphtha or other oils used. (4) Stocks end of month.

The indicated output of motor fuel from the above and other sources may be expressed by the following table:

(Thousands of gallons)

	Oct. 1927	Nov. 1927	Nov. 1926
Total gasoline produced at refineries *,†	1,213,900	1,199,400	1,102,300
Raw gasoline blended at plants east of California	3,100	2,700	2,600
Raw gasoline sold direct to jobbers (estimated)	800	800	800
Benzol production‡	9,100	8,600	7,500
Total motor fuel produced	1,226,900	1,211,500	1,113,200
Daily average	39,580	40,380	37,110
*Includes natural-gas gasoline blended at refineries	114,500	115,900	93,200
†Includes natural-gas gasoline run through refinery pipe lines in California	8,800	8,600	12,400

‡Estimated with production of by-product coke as a basis.

ANALYSES OF WEST TEXAS CRUDE OILS

(Continued from Page 80)

APPROXIMATE SUMMARY

	Per cent	Specific gravity	°A.P.I.	Viscosity
Light gasoline	1.6	.737	60.5	
Total gasoline and naphtha	14.5	.776	50.9	
Kerosene distillate	5.0	.822	40.6	
Gas oil	18.9	.858	33.4	
Nonviscous lubricating distillate	12.5	.887-.912	28.0-23.5	50-100
Medium lubricating distillate	8.6	.913-.924	23.5-21.6	100-200
Viscous lubricating distillate	6.5	.924-.931	21.6-20.5	Above 200
Residuum	34.0	.984	12.3	
Distillation loss	0.0	....	....	

SAMPLE NO. 27,864

Texas, McCamey Field, Upton County, composite sample, sand, Permian lime; depth average, 1,800-2,300 feet; specific gravity, 0.901; A.P.I. gravity, 25.6 degrees; per cent sulphur, 2.23; per cent water, 0.8; Saybolt Universal viscosity at 70 degrees Fahrenheit, 200 seconds; pour point, below 5 degrees Fahrenheit; Saybolt Universal viscosity at 100 degrees Fahrenheit, 104 seconds; color—greenish black.

(Continued on Page 91)

The "DICKBELT"

THE ORIGINAL BALATA BELT is distinguished for the following important features:

GREAT STRENGTH AND DURABILITY The cotton duck, or textile portion of the belt, is made to private specifications of R. & J. Dick Company, and is of the very best grade and strongest weave obtainable. When this fabric portion is thoroughly impregnated, by means of a secret process, with a specially prepared solution, and the solutionized duck is folded into plies, it becomes a thoroughly welded and solidified unit, possessing the maximum of tensile strength and durability.

PERFECT UNIFORMITY THROUGHOUT The absolute uniformity of the "DICKBELT" is insured by the mechanically perfect conditions under which it is manufactured.

COMPLETE IMMUNITY TO WATER AND STEAM The solutionizing of the cotton duck renders it impervious to the action of water, steam, damp, or changes in temperature. The "DICKBELT" will run under water or through steam without ill effects.

STRONG GRIPPING POWER AND LACK OF STRETCH If the belt is of a suitable strength for the work to be performed, the "DICKBELT" will transmit without loss the full power given off by the engine or motor, and having been stretched at the factory will not stretch. Should the belt become dry and smooth, a few drops of castor oil on one of the pulleys will restore the proper condition of working face.

Distributed by

Republic Supply Company

GENERAL OFFICES - HOUSTON, TEXAS

OIL AND GAS WELL SUPPLIES

ROTARY AND CABLE TOOLS

DISTILLATION, BUREAU OF MINES, HEMPEL METHOD

Air Distillation — Barometer 746 mm. — First Drop: 70°C. (158°F.)

Temperature Degrees Centigrade	Per cent cut	Sum per cent	Specific gravity cut	Degrees A.P.I. cut	Viscosity at 100°F.	Cloud test °F.	Temperature Degrees Fahrenheit
Up to 50	0.6	0.6					Up to 122
50- 75	2.1	2.7	.696	71.8	....	....	122-167
75-100	1.9	4.6	.732	61.8	....	....	167-212
100-125	3.6	8.2	.756	56.7	....	....	212-257
125-150	3.9	12.1	.779	50.1	....	....	257-302
150-175	3.7	15.8	.799	45.6	....	....	302-347
175-200	4.0	19.8	.818	41.5	....	....	347-392
200-225	5.7	25.5	.835	38.0	....	....	392-437
225-250	6.6	32.1	.853	34.4	....	....	437-482
250-275	9.2	41.3	.872	31.1	....	....	482-527
Vacuum distillation at 40 mm.							
Up to 200	5.5	5.5	.881	29.1	43	Below 5	p to 392
200-225	5.7	11.2	.891	27.3	53	Below 5	392-437
225-250	6.8	18.0	.907	24.5	76	10	437-482
250-275	6.4	24.4	.920	22.3	135	30	482-527
275-300	9.2	33.6	.931	20.5	270	55	527-572

Residuum, 34.1 per cent; distillation loss, 0.2 per cent; carbon residue of residuum, 12.3 per cent; carbon residue of crude, 4.2 per cent.

APPROXIMATE SUMMARY

	Per cent	Specific gravity	°A.P.I.	Viscosity
Light gasoline	2.7	.696	71.8	
Total gasoline and naphtha	15.8	.759	54.9	
Kerosene distillate	4.0	.818	41.5	
Gas oil	19.2	.858	33.4	
Nonviscous lubricating distillate	10.4	.888-.912	27.9-23.7	50-100
Medium lubricating distillate	7.7	.912-.925	23.7-21.5	100-200
Viscous lubricating distillate	8.6	.925-.937	21.5-19.5	Above 200
Residuum	34.1	.989	11.6	
Distillation loss	0.2	....	....	

SAMPLE NO. 27,867

Texas, World Field, Crockett County, composite sample, sand, Permian lime; depth average, 2,500-2,700 feet; specific gravity, 0.878; A.P.I. gravity, 29.7 degrees; per cent sulphur, 0.59; per cent water, trace; Saybolt Universal viscosity at 70 degrees Fahrenheit, 150 seconds; pour point, 35 degrees Fahrenheit; Saybolt Universal viscosity at 100 degrees Fahrenheit, 80 seconds, color—dark green.

DISTILLATION, BUREAU OF MINES, HEMPEL METHOD

Air Distillation — Barometer 746 mm. — First Drop: 48°C. (118°F.)

Temperature Degrees Centigrade	Per cent cut	Sum per cent	Specific gravity cut	Degrees A.P.I. cut	Viscosity at 100°F.	Cloud test °F.	Temperature Degrees Fahrenheit
Up to 50	1.5	1.5					Up to 122
50- 75	1.0	2.5	.693	72.7	....	....	122-167
75-100	3.5	6.0	.735	61.0	....	....	167-212
100-125	4.8	10.8	.759	54.9	....	....	212-257
125-150	4.2	15.1	.782	49.5	....	....	257-302
150-175	3.7	18.8	.804	44.5	....	....	302-347
175-200	4.0	22.8	.821	40.9	....	....	347-392
200-225	4.8	27.6	.835	38.0	....	....	392-437
225-250	6.8	34.4	.844	36.2	....	....	437-482
250-275	9.2	43.6	.858	34.0	....	....	482-527
Vacuum distillation at 40 mm.							
Up to 200	4.4	4.4	.863	32.5	42	Below 5	Up to 392
200-225	6.5	10.9	.868	31.5	51	25	392-437
225-250	5.5	16.4	.883	28.8	69	45	437-482
250-275	5.1	21.5	.893	27.0	110	60	482-527
275-300	6.7	28.2	.904	25.9	200	80	527-572

Residuum, 36.8 per cent; distillation loss, 0.6 per cent; carbon residue of residuum, 5.8 per cent; carbon residue of crude, 2.1 per cent.

APPROXIMATE SUMMARY

	Per cent	Specific gravity	°A.P.I.	Viscosity
Light gasoline	2.5	.693	72.7	
Total gasoline and naphtha	18.8	.760	54.7	
Kerosene distillate	4.0	.821	40.9	
Gas oil	18.5	.850	35.9	
Nonviscous lubricating distillate	10.4	.868-.890	31.5-27.5	50-100
Medium lubricating distillate	7.2	.890-.904	27.5-25.0	100-200
Viscous lubricating distillate	3.3	.904-.910	25.0-24.0	Above 200
Residuum	36.8	.949	17.6	
Distillation loss	0.6	....	....	

SAMPLE NO. 27,859

Texas, Hendricks Field, Winkler County, pump station sample, sand, Permian lime; depth, 2,700-3,100 feet; specific gravity, 0.876; A.P.I. gravity, 30.0 degrees; per cent sulphur, 1.53; per cent water, nil; Saybolt Universal viscosity at 70 degrees Fahrenheit, 77 seconds; pour point, below 5 degrees Fahrenheit; Saybolt Universal viscosity at 100 degrees Fahrenheit, 56 seconds; color—dark green.

DISTILLATION, BUREAU OF MINES, HEMPEL METHOD

Air Distillation — Barometer 746 mm. — First Drop: 30°C. (86°F.)

Temperature Degrees Centigrade	Per cent cut	Sum per cent	Specific gravity cut	Degrees A.P.I. cut	Viscosity at 100°F.	Cloud test °F.	Temperature Degrees Fahrenheit
Up to 50	1.7	1.7					Up to 122
50- 75	1.6	3.3					122-167
75-100	1.1	4.4	.679	76.9	....	....	167-212
100-125	5.3	9.7	.729	62.6	....	....	212-257
125-150	4.0	13.7	.758	55.2	....	....	257-302
150-175	4.0	17.7	.776	50.9	....	....	302-347
175-200	5.0	22.7	.797	46.0	....	....	347-392
200-225	5.6	28.3	.820	41.1	....	....	392-437
225-250	5.1	33.4	.838	37.4	....	....	437-482
250-275	6.7	40.1	.857	33.6	....	....	482-527
Vacuum distillation at 40 mm.							
Up to 200	5.3	5.3	.886	28.2	43	Below 5	Up to 392
200-225	5.7	11.0	.897	26.3	53	Below 5	392-437
225-250	5.7	16.7	.913	23.5	76	Below 5	437-482
250-275	5.6	22.3	.926	21.3	135	Below 5	482-527
275-300	6.6	28.9	.928	21.0	270	Below 5	527-572

Residuum, 29.7 per cent; distillation loss, 1.3 per cent; carbon residue of residuum, 8.5 per cent; carbon residue of crude, 2.5 per cent.

APPROXIMATE SUMMARY

	Per cent	Specific gravity	°A.P.I.	Viscosity
Light gasoline	4.4	.679	76.9	
Total gasoline and naphtha	22.7	.748	57.7	
Kerosene distillate	5.6	.820	41.1	
Gas oil	15.4	.862	32.7	
Nonviscous lubricating distillate	9.6	.894-.918	26.8-22.6	50-100
Medium lubricating distillate	6.2	.918-.927	22.6-21.1	100-200
Viscous lubricating distillate	6.5	.927-.929	21.1-20.8	Above 200
Residuum	29.7	.973	13.9	
Distillation loss	1.3	....	....	

SAMPLE NO. 27,865

Texas, Yates Field, Pecos County, composite sample, sand, Permian lime; depth average, 1,000-1,500 feet; specific gravity, 0.876; A.P.I. gravity, 30.0 degrees; per cent sulphur, 1.61; per cent water, nil; Saybolt Universal viscosity at 70 degrees Fahrenheit, 85 seconds; pour point, below 5 degrees Fahrenheit; Saybolt Universal viscosity at 100 degrees Fahrenheit, 59 seconds; color—dark green.

DISTILLATION, BUREAU OF MINES, HEMPEL METHOD

Air Distillation — Barometer 757 mm. — First Drop: 28°C. (82°F.)

Temperature Degrees Centigrade	Per cent cut	Sum per cent	Specific gravity cut	Degrees A.P.I. cut	Viscosity at 100°F.	Cloud test °F.	Temperature Degrees Fahrenheit
Up to 50	0.4	0.4					Up to 122
50- 75	1.3	1.7					122-167
75-100	2.6	4.3	.688	74.2	....	....	167-212
100-125	4.9	9.2	.736	60.8	....	....	212-257
125-150	3.9	13.1	.759	54.9	....	....	257-302
150-175	4.5	17.6	.779	50.1	....	....	302-347
175-200	4.6	22.2	.799	45.6	....	....	347-392
200-225	5.0	27.2	.820	41.1	....	....	392-437
225-250	6.5	33.7	.838	37.4	....	....	437-482
250-275	6.0	39.7	.854	34.2	....	....	482-527
Vacuum distillation at 40 mm.							
Up to 200	4.1	4.1	.878	29.7	43	Below 5	Up to 392
200-225	6.0	10.1	.887	28.0	52	Below 5	392-437
225-250	5.8	15.9	.906	24.7	75	Below 5	437-482
250-275	5.0	20.9	.917	22.8	125	Below 5	482-527
275-300	11.9	32.8	.928	21.0	270	Below 5	527-572

Residuum, 25.7 per cent; distillation loss, 1.8 per cent; carbon residue of residuum, 11.6 per cent; carbon residue of crude, 3.0 per cent.

APPROXIMATE SUMMARY

	Per cent	Specific gravity	°A.P.I.	Viscosity
Light gasoline	4.3	.688	74.2	
Total gasoline and naphtha	22.2	.753	56.4	
Kerosene distillate	5.0	.820	41.1	
Gas oil	18.5	.857	33.6	
Nonviscous lubricating distillate	9.8	.885-.912	28.4-23.7	50-100
Medium lubricating distillate	7.0	.912-922	23.7-22.0	100-200
Viscous lubricating distillate	10.0	.922-.936	22.0-19.7	Above 200
Residuum	25.7	.984	12.3	
Distillation loss	1.8	....	....	

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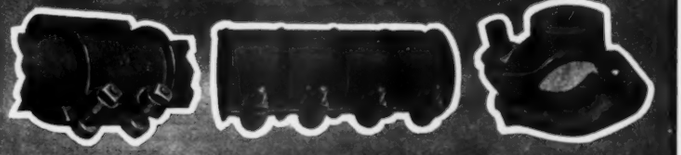

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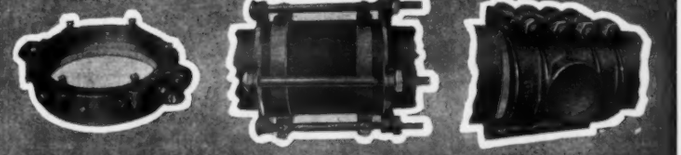

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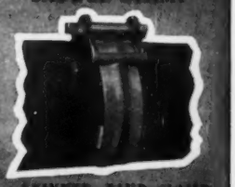

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CHICAGO, ILLINOIS.

Seminole Plan Will Prevent Oil Flood

Operators Considering Matter of Starting but Two Wells on Each 40 Acres. Over 500 More Wells to Be Drilled

By J. L. Dwyer

Although at least 500 wells will in all probability be drilled and equipped in the Greater Seminole area during 1928, and $50,000,000 expended through this work, there will be no flood of oil thrown upon the market if present plans of the umpire and the advisory committee are carried out.

The plan under consideration by the Seminole operators calls for starting two wells to each 40-acre tract of lease instead of four which have previously been started. It is not the intention of the umpire or the operators to limit the drilling to this figure, but it is to be applied to the starting of wells. It means that instead of starting four wells on each 40-acre lease when production begins to approach, there will be two wells started, and upon the completion of one or two wells, a corresponding number may be started. In this manner, the drilling will be more regular, tools and drilling equipment may be rotated from well to well instead of purchasing additional equipment and then having it idle after a single batch of wells are completed, and the new production of the area will be spread out to better advantage.

It is believed that if this plan is adopted, such a debacle as that of 1926 and 1927 when the Seminole pools were under intense development will be eliminated, and an orderly program of operation will result. It has been rumored that over 60 per cent of the operating concerns have agreed to this plan, and its adoption may be expected during the current month.

Should it be adopted, it will mark another step in the progress which has marked the path of the Seminole companies, and will reflect additional credit upon the umpire and committee who evolved it.

Hasty Drilling Expensive

It has been pointed out that past experiences at Seminole have been disastrous. Hasty drilling campaigns have been expensive, and in many cases 50 wells have been started when it would have been more prudent to have started 15. At Little River alone, 104 wells were commenced when one producing well was completed, and it is situations similar to that which the present plan is designed to eliminate.

Taking a glimpse of the 1928 outlook for Seminole, indications are there are at least 500 wells which must be drilled. As mentioned above, the drilling equipping and miscellaneous development cost of this work will be close to $50,000,000, and if this money is expended in a cautious and orderly drilling campaign which is governed by economy of operation, little damage will result.

The actions of the companies and individuals having holdings in the Seminole area were characterized by unity of action in 1927.

The concord which prevailed during the latter half of the year especially, marked a step which made history in the industry, and the companies were looking forward at the trouble rather than looking backward at the damage.

What will be done in this area during the coming year is a matter of speculation. The present agreement which was originally made last August, provides for shutting in the output of wildcat wells discovered outside of the limits of the proven fields, and prohibits the starting of any new wells close to the wildcat strikes. It has worked admirably, and has done much to lend strength to the crude market in this region by limiting the oil from new localities. It has been estimated that had this agreement not been in effect, the peak of the Greater Seminole area would have easily exceeded 625,000 bbls. at some time during the summer of 1927.

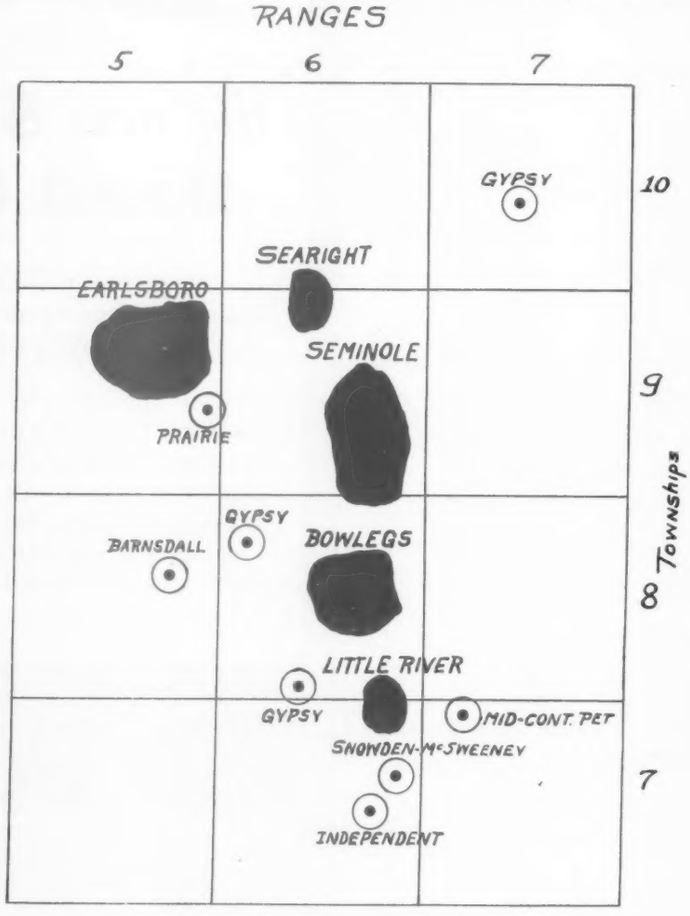
Agreement Up March 1

The agreement made last August has been extended several times and now expires March 1, 1928, and upon its expiration the new plan will be put in force if it shall have been adopted. Under this plan, each of the eight spots on the accompanying map will be the scene of extensive drilling activity. Considering the south parts of the area especially, at least 250 wells will be started when the ban is lifted, and assuming that work is started on March 1, it will be well into June before the first group of wells reaches the 4,100-foot Wilcox sand. Under the new plan, the second group of wells will be started as soon as the first group are finished, and through this action, the flush production which is anticipated from this region will be extended over the summer months instead of being thrown upon the market in June.

Had drilling activity been continued through the late fall of 1927 and this winter, the crude price structure would have been demoralized, as the wells would have thrown quantities of oil onto a market which was incapable of absorbing it. As far as the current Oklahoma-Kansas crude oil situation is concerned, the outlook is promising and current production in this region is now very close to current demands for crude. There are several of the larger units which are reluctant to draw upon their crude stocks for oil requirements, and whose daily production has decreased to the point where it and the purchases which they make are barely sufficient to meet their crude committments. This and the few instances of premiums which have been recorded, unquestionably presage an improved condition of price.

Wells Pinched In

The eight circles on the accompanying map show the wells which have been operating under the agreement. They have been pinched in to a maximum output of 100 bbls. per day each. Out of the eight, five loom into prominence, and three are rated as having mediocre prospects.



Potential pools of the Greater Seminole area. The wells marked with a circle are producing wells which have been shut in under the Seminole operators' agreement

Probably the most promising of the eight is the Barnsdall Oil Co.'s No. 1 Fife, in Section 14-8-5. This well is thought to have opened a new structure, and an exceptionally high valuation is placed upon the land which is situated between it and the western limits of the Bowlegs Pool.

Another well which is rated highly is the Independent Oil & Gas Co.'s No. 1 Harris, in Section 23-7-6. The region between the Independent well and the Snowden & McSweeney well is solidly leased, and held in very high regard. The Mid-Continent Petroleum Corp.'s No. 1 Smith, in Section 5-7-7, is also well located with regard to structure, and the field between it and the Little River Pool will certainly be the scene of activity during the coming spring. The Gypsy Oil Co.'s No. 1 Cindy Brown, in Section 33-8-6, south of the Bowlegs Field is reported to be situated rather low structurally, and while this well has enjoyed a good production, the territory around it is believed to be rather spotty, for the Brown well was found almost 200 feet lower than the wells on the southwest edge of the Bowlegs Pool. The Prairie Oil & Gas Co.'s No. 1 Baker, in Section 24-9-5, is another area which has attracted little attention, but which has occasioned more thought lately owing to the finding of good production on the southeast edge of Earlsboro.

Considering the past eccentricities of Earlsboro, it would not be surprising to find another high between the Baker well and the field, and a good pool could be discovered in this region. The Gypsy Oil Co.'s No. 1 Dosar, in Section 7-8-6, to the west of Bowlegs, is a well which is reported to be showing water. It even caused a surprise when it found the Wilcox sand productive, as it was offset by a dry hole drilled by the Amerada Petroleum Corp. The intrusion of the salt water in the Dosar well tends to indicate a limited area for the production which may be expected from this region.

Promising Areas

The territories which offer the greatest chances for 1928 are around the southeast edge of the Earlsboro Pool and the land to the east of the Little River Pool running towards the Mid-Continent well; also the 7-6 country south of Little River; the latter especially covers a wide scope, and this township will be drilled very thoroughly during the year.

It is rather easy to visualize a peak production of 350,000 bbls. daily which may be attained from the potentially productive spots during the summer.

Some interesting data upon potential wells is given below: Gypsy Oil Co.'s No. 1 Solomon, Section 21-10-7, elevation 922 feet, Cromwell sand 3,730-3,734 feet, initial production 400 bbls. of oil and 5 bbls. of water.

Barnsdall Oil Co.'s No. 1 Fife, Section 14-8-5, elevation 941 feet, Wilcox sand 4,291-4,294 feet, initial production 1,100 bbls. in 11 hours. This well had the Sylvan shale 4,092 feet, and the Viola lime 4,173 feet.

Gypsy Oil Co.'s No. 1 Dosar, Section 7-8-6, elevation 1,013 feet, Wilcox sand 4,465-4,466 feet, initial production 90 bbls. hourly. This well had the Sylvan shale 4,260 feet, and the Viola lime 4,335 feet.

Independent Oil & Gas Co.'s No. 1 Harris, Section 23-7-6, elevation 880 feet, Wilcox sand 4,323-4,324 feet, initial production 2,350 bbls. daily. This well had the Sylvan shale 4,162 feet, and the Viola lime 4,188 feet.

Snowden & McSweeney's No. 1 Tiger, Section 13-7-6, elevation 964 feet, Wilcox sand 4,315-4,316 feet, initial production 750 bbls. per day. This well had Sylvan shale 4,175 feet, and Viola lime 4,213 feet.

Mid-Continent Petroleum Corp.'s No. 1 Smith, Section 5-7-7, elevation 979 feet. Wilcox sand 4,443-4,444 feet, initial production 1,250 bbls. daily. This well had the Sylvan shale 4,300 feet, and the Viola lime 4,330 feet.

R. O. GRAVER DIES FROM WOUND

R. O. Graver, superintendent at El Dorado, Ark., for Keen & Woolf, Shreveport oil operators, died January 2 at his home at Algulf, 10 miles north of El Dorado, from an accidental gunshot wound.

Feature No. 9 Regan's *New Crown Block*

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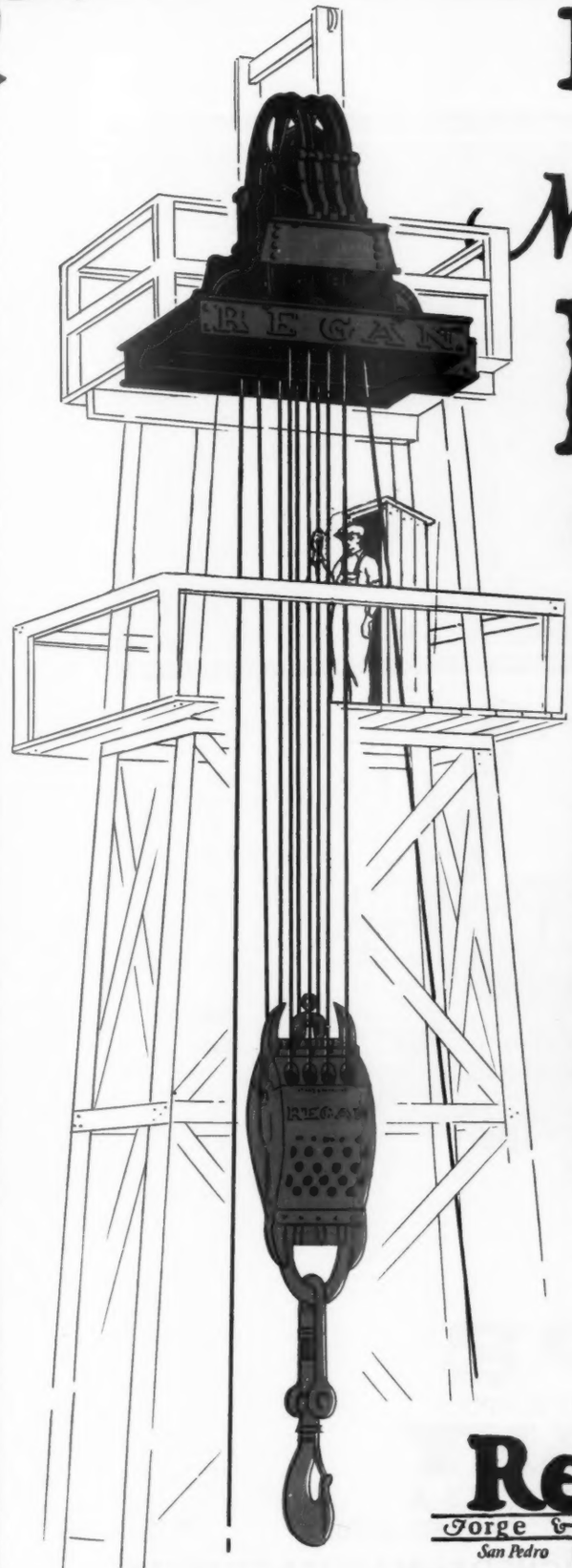

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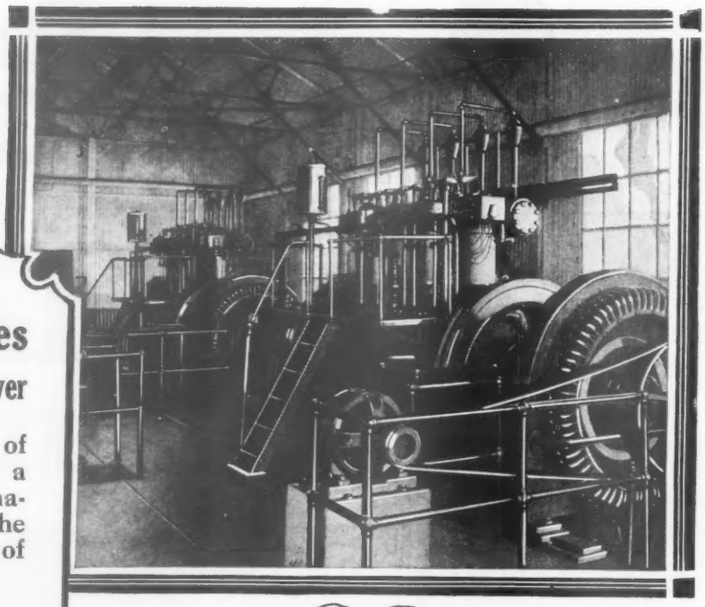

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KENTUCKY-TENNESSEE

(Continued from Page 59)

development work in any part of Kentucky, but the early spring season will show great activity in both McLean and Daviess Counties, where excellent producers have been uncovered during the past month or so.

The best of the late completions in the Ohio County area is James C. Ellis' No. 1 on the Bud Hoagland, 3 miles south of the town of Taffy. There were 38 feet of good sand in this well which is a mile in advance of any known producing wells and flows its oil at the rate of approximately 250 bbls. a day, which puts it among the good producers of the county. Mr. Ellis' last well on the Spence Bartlett farm, completed a few weeks ago, is said to be putting a solid stream of oil through a 3-inch pipe continually, making it without doubt one of the outstanding wells of this county.

James C. Ellis drilled in his No. 3 on the J. R. Weller No. 2 farm, between the Ambrose Pool and the Sunnydale Field, and reported it good for 200 bbls. initial production. His No. 3 on the Ada Keith farm, southeast of the Ambrose Pool and between Mount Moriah Church and Hartford, the county seat of Ohio County, is an initial producer of 150 bbls., while his No. 1 on the Nancy Keith farm is estimated with an initial of 15 bbls. Same party drilled a dry hole at a test on the Magnolia Smith farm and another of the same kind on the Vincent Crowe farm, east of Mount Moriah Church.

The Ohio Oil Co.'s No. 12 on the James C. Ellis farm, in the Ambrose Pool, is reported good for 10 bbls., while No. 5 on the D. S. Gray farm, same pool, is an 8-bbl. pumper.

Wood Oil Co.'s No. 21 Mary Elmore farm, in the Ambrose Pool, is a 75-bbl. initial producer and No. 22, same farm, good for 125 bbls. initial.

L. C. Young's test on the Dom Mitchell farm, drilled in a duster, and the Pompos Oil Co. got one of the same kind at No. 1 on the L. Trodgen farm.

In the Colyet Pool, Oliver Jenkins and others' test on the Joe Bellmy 25 acres set a string of 409 feet of casing and found the sand from 409 to 432 feet, and shot with 60 quarts, getting a 10-bbl. initial pumper. Mr. Jenkins is an old-time eastern Kentucky operator, formerly working in the Johnson-Magoffin County fields.

In the Sunnydale Field, Earl Patton's No. 2 on the Mark Renfrew 149 acres set a string of 405 feet of casing and a nice gas sand was encountered at 432 feet and went to a total depth of 452 feet and was shot with 40 quarts, the well having an initial production of 75 bbls.

James C. Ellis is drilling No. 1 on the J. G. Hoagland farm and No. 1 on the Jane Daniels farm, and also drilling a test on the Bob Wilson farm, in the Red Hill area, where a good well is looked for. Leeper Oil Co. is nearing the sand with a well on the Colonel Powers farm. Dr. L. C. Young is drilling a test on the Sands farm, in the Red Hill area.

Daly, Lowman and others are drilling No. 3 on the Ollie Ozell 50 acres, Jordan and Short are working at No. 2 on the Gilbert Jolly farm, and the Wittmer Oil & Gas Co. is drilling No. 1 Chase farm. Cy Johnson, old-time Scottville operator, has a well starting on the Rufus King farm, in the King Pool. The Ohio Oil Co. is drilling No. 1 Rosetta Smith farm.

In the Sunnydale Field, the Wood Oil Co. is drilling No. 1 V. Ferguson farm. Earl Patton is drilling No. 3 on the Mark Renfrew 149 acres. George Randolph is drilling No. 4 on the Joe Maiden 357 acres.

Other Completions

In the Bowling Green Field of Warren County, and 3 miles south of the city, Grace S. Bruton's test, 200 feet from the south line and 550 feet from the east line of the Harry Lazarous farm, is good for 3 bbls., but not as yet connected with the pipe line. The oil was found in the shallow sand at 472 feet.

In the Gainesville Field in the northeastern part of Allen County, Sayer and Johnson drilled No. 5 on the Will Hendrix farm, which pumped but 1 bbl. at a depth of 405 feet.

Notes From the Fields

When James Ellis drilled in his well on the Hoagland farm, it made the fortieth producing oil well all within less than two years, which is going some for a native operator who drilled his first venture on the J. R. Weller lease that started the great activity in the Ambrose Pool.

Evans and Young drilling the test well on the Boyd Bristow farm, three-quarters of a miles north of the McLean County, line and in Daviess County, and a mile north of the Dimmick Brothers well on the Ratliff farm, in McLean County and west of the town of Utica, drilled 7 feet into the sand with a very good showing. All of the land in the Bristow and Dimmick sections has been under lease and several big transactions have taken place both in sales of leases and purchases of royalties. Oil operators look to this section to develop some big production, and as soon as weather conditions settle so that work can be done, a large number of wells will start drilling.

The deep drilling in McLean, Daviess and parts of western Ohio Counties is taking a strong hold on operators already in the field, as well as in Oklahoma, as it is given out that numerous operators from Oklahoma and the Mid-Continent fields will soon invade the three counties.

In the test well drilling by McMahon & Combs on the W. V. Lewis farm, 4 miles southeast of Philpot and between Habit and Boston, in Daviess County, got a nice oil showing in the Jackson sand, but concluded to test out the lower Barlow sand. A 20-foot sand was found in the Jackson sand along with some water and oil. The Jett sand was dry. Should the Barlow fail to show, it will be plugged back to the Jackson sand and tested out.

Samuel J. Patrick and Sons of Lexington moved a rig in for a test on the Rudy farm, 4 miles west of Owensboro, on the Main Street Road in Daviess County, and spudding is expected to start within a few days if weather will permit. This will determine the possibility of oil in the center of the coal field west of Owensboro. The Patrick interests hold leases in about 3,000 acres, and if the first test does not prove profitable at least a half dozen will be drilled.

The Jennie Wilson farm of 1,200 acres, which takes in the Bon Harbor Hills, and several other big farms in that section are expecting to get a test early in the year. Circuit Judge George S. Wilson has charge of this large farm, in which he is interested with the estate of Mrs. Wilson in coal and surface rights as well as the oil rights.

Harlan Boyd, owner of a 100-acre farm a mile from the Hayden well, in Daviess County, sold one-half of his royalty interest for $6,500. There is no well on the land and Boyd paid $3,500 for the farm originally. Cosby and Lang, of Lexington, are reported the purchasers of the half royalty interest on the Boyd farm.

The pipe line is now completed to the Hayden well and being connected up, there being three 250-bbl. tanks and four 100-bbl. tanks full of crude from the well. The line is extended some distance on toward the Dimmick well in McLean County, some 6 miles westward. This extension will also take in the Bristow farm well, if it proves a commercial producer.

EASTERN FIELDS

(Continued from Page 61)

sands. In Center district, the Manufacturers Light & Heat Co. has a gasser in the Gordon sand at a test on the George Grimes farm. In the same township, the Consumers Fuel Co. shot No. 4 on the James S. Rutan farm, increasing its production from 25 to 100 bbls. a day.

In Morris Township, Greene County, Null & McCloy are placing another tank at their test on the Clyde Ray farm. It will be given a shot in the Ninevah 30-foot sand and is expected to make a 20-bbl. producer.

In the same township, Greene County.

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BARSCO

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Here's another BARSCO product that, because of its more modern superior design and *forged steel* [can't break] construction, renders a *longer service - - more economical* because fewer replacements - - approximately *less than one-half the weight* of the ordinary cast iron head.

The *forged steel* from which the head is made has a carbon content of from 50 to 60 points and tensile strength of from 90,000 to 110,000 pounds. Will stand up under the most severe service—*no danger of breakage.*

For working pressures up to 4000 pounds

"Barsco" Forged Steel Braden Heads are provided with an inner thread into which a short piece of casing is screwed. The head is then lowered into position below the derrick floor and set up. Outlets are threaded for 2-inch or 3-inch pipe. These heads are furnished with rubber rings for packing and a split steel ring which can be removed, allowing the couplings to be pulled through head without breaking any connections. Furnished with either solid or split Stuffing Box.

Prices and weights furnished upon application.

Stocks Carried by Dealers

BARTLESVILLE SUPPLY COMPANY of Missouri
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406 WEST FIRST STREET, TULSA, OKLA.
Texas Warehouse—J. G. Lockard, 504 Western Ave., Amarillo, Texas
Export Office: 150 Broadway, New York City

Manufacturer's Representative
Miller Tank & Supply Co., Casper, Wyo.

—Write for Complete Catalog

"You Can Be Sure of Neilan Products"

Neilan Casing Head Regulator No. 52

Durable Reliable Accurate

NEILAN
Casing Head
REGULATOR

Resists Corrosion From Sulphur Compounds

Neilan Casing Head Regulators have stainless steel stems, stainless steel lever pins, and being of cast iron construction throughout are highly resistant to corrosion from sulphur compounds.

They will regulate accurately without pounding or chattering regardless of light load or full capacity load. They operate smoothly without sticking or binding and will give satisfactory service under the hardest working conditions.

Extremely simple in design—no stuffing boxes, no dash-pot, no outside control pipe. Strong and compact.

For vacuum up to 20 inches and pressures up to 10 pounds.

Bulletin on request.

NEILAN, SCHUMACHER & CO.
641-651 Santa Fe Avenue, Los Angeles, Calif.

Representatives:

Maintenance Engineering Corp., 2000 Harrington St., Houston, Texas

NEILAN

C. F. Camp Company 221 East Archer St., Tulsa, Okla.

Null, McCloy & Co. have a duster in the Gordon sand at a test on the John L. Clutter farm. In Springhill Township, the Dunn-Mar Oil & Gas Co. drilled deeper its old No. 1 on the James Null farm. It is a gasser in the Gordon sand.

ELECTRICITY IN THE PETROLEUM INDUSTRY

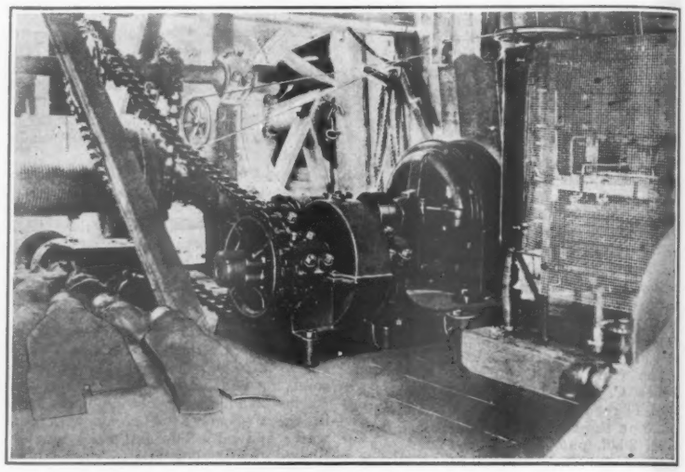
(Continued from Page 68)

switches, trouble can be localized and confined to the affected unit.

High Power Lines

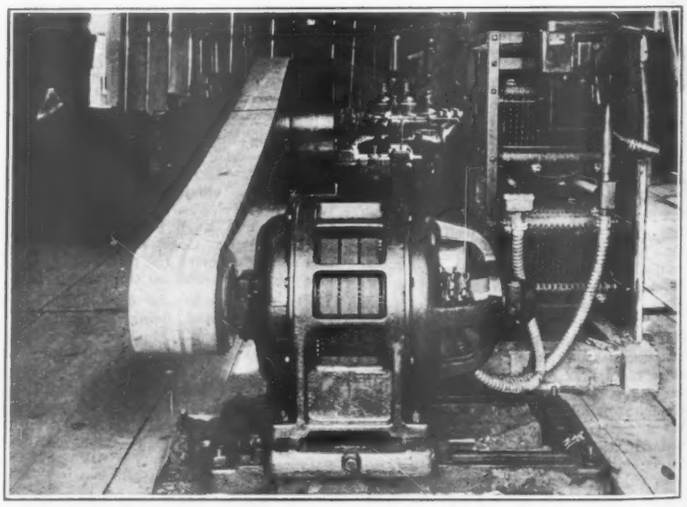
For public distribution, electricity is generated at from 2,300 to 6,600 volts and is then stepped up through transformers to 63,000 or more volts for transmission. High voltage requires less copper in the lines for the transmission of a given amount of energy. At suitable points, substations are installed where transformers step the voltage down to a proper value for local distribution. Secondary substations in the immediate vicinity of motor loads again drop the voltage to 440 volts, the usual standard for the oil industry. At the power stations and at all substations, lightning arresters and other safeguards are installed to insure continuity of service.

The drilling of wells for oil, gas, and water is being carried on extensively by electric motors in connection with both cable and rotary tools. Wound-rotor motors of 50 or 75 horsepower at 720 or 900 r.p.m. are used with cable rigs. For wells of moderate depth, smaller motors are successful, such as 35 to 50 horsepower for wells from 1,500 to 2,500 feet deep. The wound-rotor motor can be operated at reduced speeds and it can be made to vary its speed as its load varies, and the extent of this variation is under control by means of a controller and resistor. For cable tool drilling a control equipment is used that is especially devised to give a wide range of speed variation for a given load change, and means are provided for adjusting this characteristic by very fine gradations. The driller is thus enabled to choose a setting that will make the motor speed up and slow down, with each stroke, just the required amount to take full advantage of the elasticity of the cable. Once set, there is no variation in speed or character of the stroke until the length-



Type 1-14 10-pole 75-H.P. 720-R.P.M. form M 440-V. motor on 50-cycle circuit, driving a rotary drilling rig at the Chanslor-Canfield Midway Oil Co., Redondo, Calif.

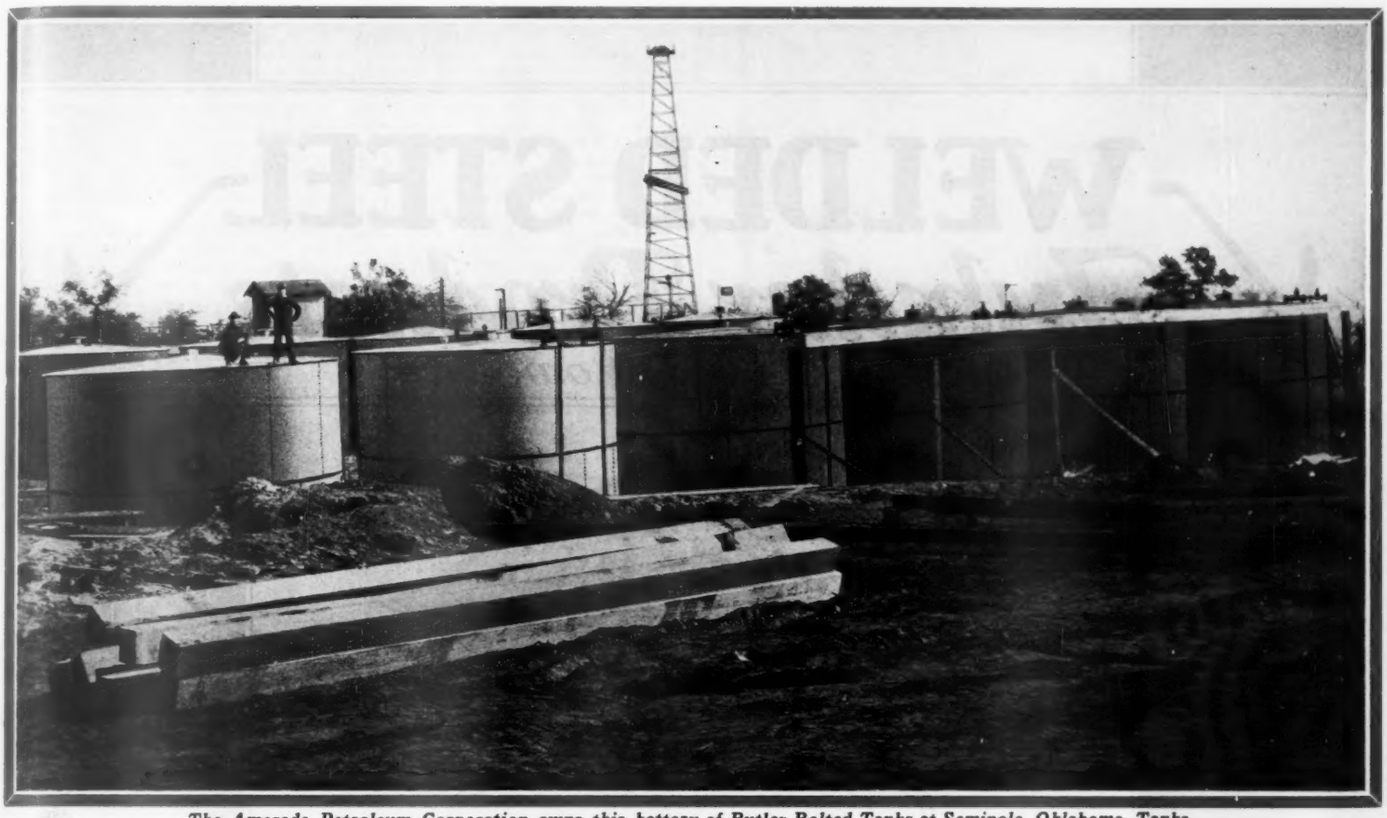
ened cable makes it desirable to change the speed characteristic. The control is adjusted by "telegraph cord" the same as used with a steam engine throttle, and provision is made for readily reversing the motor. The belt or gear reduction between motor and bandwheel should be such that the crank will make about 65 to 70 r.p.m. when the motor is at top speed, that is, with the resistor all out. While drilling, the speed will be reduced to somewhere between 45 and 20 r.p.m. by turning the controller on to a degree which takes full advantage of the kick of the drilling cable.



Type MT-346 8-pole 50-H.P. 900-R.P.M. 440-volt motor on 50-cycle circuit driving slush pumps for rotary drilling, LaMerced Oil Co., Montebello, Calif.

Electric Hoisting

For all the attendant hoisting work, the motor can be speeded up and given the constant-speed-under-any-load characteristic by turning the controller all out. Hoisting work being of an intermittent nature, the speed ratios between the bandwheel shaft and the working units should be such as to quite materially



The Amerada Petroleum Corporation owns this battery of Butler Bolted Tanks at Seminole, Oklahoma. Tanks were put up by the Drane Tank Co.

On duty at Seminole

—*and they are Butler's*

Speed is easily secured in erecting *Butler Bolted Tanks.* All holes are accurate in size and position. Mammoth machines punch them in each Butler Sheet—this assures dependability.

Since fewer sheets are needed, there are fewer seams and naturally fewer chances for leaks. Less handling is necessary. All these advantages are secured because Butler sheets are large! All sheets are made of blue annealed copper steel or 3/16" and heavier tank plates for added strength and rigidity where needed. Write for complete information.

Any kind of welded tank made to your specifications.

Protects your men!

The Butler Clean-out Opening is large—measuring 2'x4'! It is not a back breaker. It is convenient for an entire cleaning out of the tank. Because of the size of this opening the work can be done easily, quickly and more safely.

All bolts are removable from the outside!

These reliable dealers erect Butler Bolted Tanks and are ready to serve you speedily:

M & V Tank Co. at Wichita Falls, Olney, Nocona, Cross Plains, Albany, Cisco, Isom, Pampa and Brownwood, Texas.

Drane Humphrey Co. at San Angelo, Big Lake and McCamey, Texas, and Carlsbad, New Mexico.

Drane Tank Co. at Tulsa, Holdenville, Seminole, Hallett and Shawnee, Oklahoma; Eldorado and Madison, Kansas.

M. A. Trimmer at Blackwell, Oklahoma.

Southern Steel Company at San Antonio and Mirando City, Texas.

Champion Supply Company at Casper, Wyoming.

Thomas Moran at Oil City, Shreveport and Georgetown, Louisiana.

Continental Supply Co., at Kevin, Montana.

"Oil Field Tanks" Catalog

contains information on bolted tanks, steel stairs, valves, flow and storage tanks, welded field tanks, etc. Send for a copy today.

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Butler Products include: Ready-Made Steel Buildings, Cans, Funnels, Buckets, Measuring Pumps, Truck Tanks, Underground Tanks, Storage Tanks, Bolted Tanks, Etc. Pipe that can be used as conduit, double well casing or in other ways.

WELDED STEEL
Tubular Products
SIZES ⅛" TO 24" O.D.

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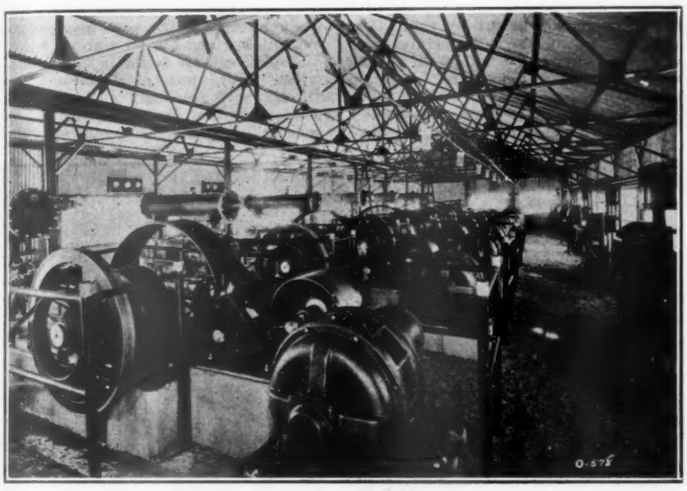
ESTABLISHED 1828

overload the motor to insure hoisting at maximum rope speeds. Drillers are at first inclined to think the motor drive slow on hoisting because of its constant speed throughout the cycle and its very quiet operation. Only when the watch is referred to do they realize that round trips are being made in remarkably quick time. On the other hand, by turning the controller nearly or fully in, the motor speed can be greatly reduced even at light loads for spudding in, ramming, or making up.

The most successful control for all-around drilling work is made up in two parts with coarse adjustment on one and fine intermediate points on the other. This form gives approximately a hundred different settings in a much simpler and more workable way than would be possible with a single range control. The 440-volt transformer bank should be equipped with ample capacity to insure full voltage under all conditions, and it should be protected by lightning arresters, choke coils, and disconnecting switches. The motor and control should be protected by an overload oil circuit breaker with a time element that prevents a trip-out on an overload of short duration.



Group of seven 75-H.P. motors driving air compressors for air-gas lift work in the Seminole Field.

Undervoltage release should also be included to prevent an unexpected restart of the machinery upon re-establishment of power after a failure of voltage.

Use in Rotary Drilling

Many of the above remarks apply as well to rotary drilling. The same motor and control can be used with a rotary rig, where it is used in combination with cable tool drilling. An independent rotary rig, however, may utilize a larger motor to advantage, say 100 to 125 horsepower. The control does not require the fine adjustment used by cable rigs, but, on the other hand, a greater speed range is required to get a very slow idling speed. The severe requirements of rotary drilling dictate that the control, and especially the reversing elements, be carefully engineered to insure long life and uninterrupted service.

The slush pumps used with rotary rigs are now usually each equipped with a motor and control. Pumps having the motors mounted upon and geared to them are the more compact and reliable. Having a complete pump unit in reserve makes it possible to shift instantly from one pump to the other or both pumps may be used.

Slush pump motors may be 50, 60 or 75 horsepower, according to the size of the pump and the standard two-speed motors, that follow under pumping, have been used with success. They are usually of the wound-rotor type with a resistance starter and speed changing and reversing control. The reversing feature is desirable for repacking and for breaking out of a jam. Motor speeds are selected to make favorable gear ratios with the pump and should not exceed 900 r.p.m. The speed control need only be sufficient to bring the motor down to half speed at full load. Protection features are similar to those described under cable tool drilling equipment.

Vapor protected motors and control are available for drilling operations where dangerous gaseous conditions are anticipated, or where the law requires such safeguards.

Rig lighting is accomplished by using a separate lighting transformer and switches. Ample lighting, conveniently arranged is a good investment. Specially designed change house heaters are available. They require 12 kilowatts intermittently and are controlled by a simple switch from the 440-volt power circuit.

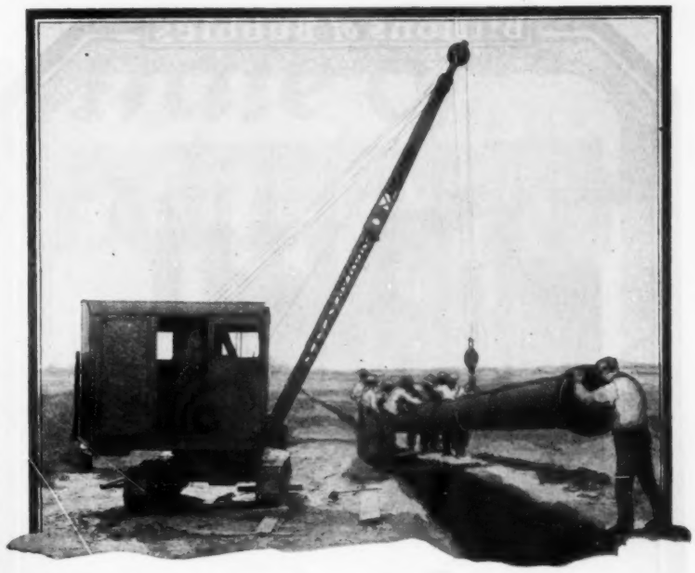
Measuring Power

By means of a recording wattmeter, all the power used on the rig can be measured and recorded and the record will also show the duration and sequence of individual operations, besides providing a running record of all rig operations from start to finish of the well. An ammeter located at a point near the driller's position enables him to see how much load the motor is carrying and makes it possible to make more hole than might be the case without such an indication.

Well pumping opens up a wide field for motor application and producers have not been slow in availing themselves of the advantages of electric power for this purpose. Beam pumping, whether using the drilling rig or a special reduction gear unit and draw works, can usually best be carried on by a two-speed motor. As the maximum speed of an alternating current motor is a function of pairs of poles and cycles of the power supply, it follows that by changing the polar grouping of the windings, the speed can be changed. A two-to-one speed ratio change is simple and only requires a pole changing switch to change from, say, 6 poles to 12 poles. On 60 cycles, this gives speeds of 1,200/600 r.p.m. and on 50 cycles 1,000/500 r.p.m. Standard ratings in most common use are 35/15 horsepower, 50/20 horsepower and 55/25 horsepower. Over 6,000 of these motors of one make are in successful operation on oil wells.

The lower speed and lower horsepower is used for pumping, and the other combination is used for pulling rods and tubing, bailing, etc. The size of motor required depends upon many variable factors, among which friction is important and difficult to predetermine. In any case there is required a conservatively rated motor with ability to exert a pull, on the high speed connection, four or five times as strong as the nominal rating would indicate. Mechanical protection by extra banding is required on the rotor to insure safety at high coasting-in speeds.

The control elements for all duties at both speeds consist of a reversing controller, a pole changing switch, an overload relay and a fused disconnecting switch. The speed can be changed from low to high and back, without stopping, when it is desirable to shake up the pump



Easy on the gang!

Picks them up, lays them down and buries them—*a mile a day*

The heavy, time-killing, costly work of pipe line laying is all done quickly and inexpensively with this sturdy little Buckeye.

A prominent Tulsa pipe line contractor declares that it replaces 24 men. A Dallas contractor says he lays and "stabs" a mile of 20-inch pipe daily with it, welding three 20-foot sections on the bank and lowering them all together.—that's a 6000-pound load.

Model O Backfiller Crane Costs only $4750

It handles loads that will surprise you. It backfills quickly and, because of its full circle-swing and speedy traction, it covers a wide working radius.

Having the same superior construction as the famous Buckeye pipe line ditchers, it will render equally satisfactory service.

Considering the number of men it will replace and its economical operation, the initial cost (f.o.b factory without bucket or cab) of Model O is saved after a few months' use.

Write for our new descriptive and illustrative bulletin.

The Buckeye Traction Ditcher Co.
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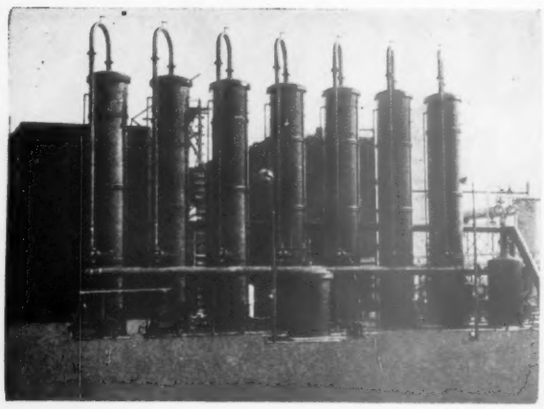
There's a Buckeye Sales and Service Office Near You

Buckeye TRENCH EXCAVATORS FOR OVER 30 YEARS

Billions *of* Bubbles



Complete Working Plans for Gasoline Plants Available

Campbell Absorption Plants are standardized. Our Engineering Department has prepared plans and working drawings for scores of plants ranging in unit capacity from 1,000 to 30,000 gallons of gasoline per day.

Construction is adaptable to any field economically. Aside from a few pieces of fabricated equipment such as the Stripper, Absorbers, Preheaters and Mist Extractor practically all the material is obtainable in any oil drilling center.

So we furnish standardized plans, construction and materials. Our Catalog gives full details.

CAMEL-DRY GAS

J. A. Campbell
Natural Gas Engineer
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Campbell
Oil-Froth Absorbers

on account of sand. Both speeds are variable by means of the controller.

Pumping wells with individual jacks require 5, 7½ or 10-horsepower squirrel cage motors which, if of the high resistance type, may be thrown directly on the line by means of a magnetic line switch and push button. Protective features are incorporated with the switch. Band wheel powers require from 1 to 3 horsepower or more per connected well, according to depth and other factors. The band wheel is usually driven by a belted or geared 15, 25 or 40 horsepower squirrel cage motor having a compensator starter which includes protective devices.

Air-Gas Lift Pumping

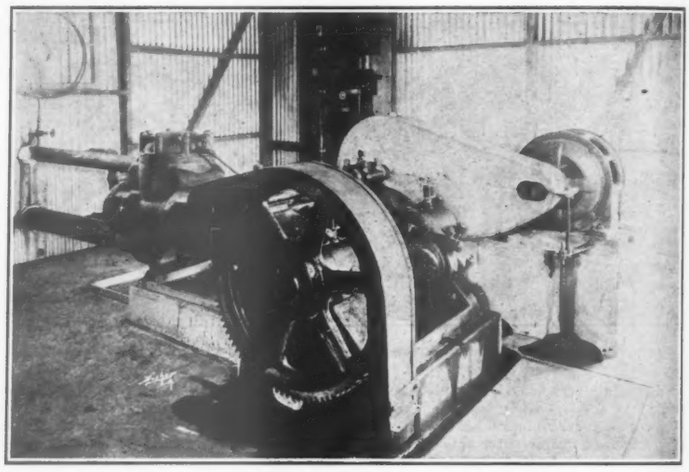
Air-gas lift pumping presents an ideal application for electric motors for here light weights, simple foundations and low operating costs have a definite appeal. In new fields, air-gas lift with motor-driven compressors have been adopted wholesale and results have proven them to be a wise selection. The sizes most used at present are 75 and 100 horsepower with 900 r.p.m. the common speed. The motor size is determined by the compressor size and intake pressure. These squirrel cage motors are usually belted to the compressors on close centers with a belt contactor to insure traction. Control may be either a hand-operated or a magnetic compensator with push button.

Compressor stations are operating equally well on 440 volts and on 2,200 volts. Small auxiliary motors drive water circulating pumps for cooling the compressors. Being in the order of 5 horsepower or less, they are usually started by a simple magnetic line switch. In larger stations 7½ or 10 horsepower motors are used and they may be of the high resistance type with switches or ordinary squirrel cage motors with compensators. Compressor station lighting is marked by the use of vapor-proof fittings, large white reflectors and ample wattage. Secondary substations for compressor drives are usually subdivided into a few groups, each closely lined up with the motors served. A lighting transformer and switches provide for the lights. Very large electric compressor stations are operated by only a few men and attendant expenses are comparatively low. When the conditions of wells warrant it, the compressors with their motors can be easily picked up and moved to a new location where they are put into operation, with little loss of time.

Water Pumping

Water pumping is an important feature of oil field operations whether steam engines, gas engines or motors predominate, because water is required in any case, though for motor operations all of the water is used in the well or for brake cooling. River bank stations utilize various types of centrifugal and reciprocating pumps. A type destined to be popular in districts subject to flood is the vertical motor direct-connected to a centrifugal pump. The motor may be located on a box-section concrete pier above flood level, and the pump can be located low enough to insure submersion, or at least a low suction head, when the water is at its lowest level. Squirrel cage motors are used on practically all water pumps and they may be geared or belted to reciprocating pumps or direct connected to centrifugals. Compensators are used for starting and protection. Motor sizes range as high as 250 horsepower, and, in such sizes, wound rotor motors are used on account of their lower current demand at starting. Where water has to be conveyed a great distance, water boosting stations are installed similar in character to the river bank stations. Water well pumping may be by beam, jack, or air lift, following, usually on a smaller scale, the practice with similar oil pumping operations.

Transportation of oil is becoming motorized to a considerable extent and is destined to become more so as economic conditions change. Gathering pumps rarely require more than a 25-horsepower motor with compensator. The pumps may be centrifugal direct-connected or reciprocating, geared or belted. Motor drive is especially economical, as one attendant can look after a number of widely scattered units. Electric pipe line pumping for both key and booster stations has become a prominent factor in oil transportation. Neat, clean, quiet stations, with "throughput" seemingly all out of proportion to the size of equipment and housing, are found throughout electrified oil districts. The motor types and speeds range through squirrel cage, wound-rotor and cynchronous motors and from 450 to 3,600 r.p.m. Gigantic slow-moving reciprocating pumps, as well as high capacity, through physically small direct-connected centrifugal pumps are electrically driven. Costs from every standpoint seem to be very favorable, especially as regards attendance. Seminutomatic and full automatic stations are becoming more common and there is no reason why these systems should not be greatly extended. Automatic substations and automatic hydroelectric stations have many more complications and contingencies to meet than are found in pipe line stations, yet they are eminently successful and very largely used.



Type KT 40-H.P 440-V. constant speed induction motor with silent chain drive operating an oil gathering pump on a lease of the Associated Oil Co., Huntington Beach, Calif.

Large pipe line pump motors, of whatever type, should be equipped with automatic magnetic starters incorporating all necessary protective features. Secondary substations with lightning protection, lighting transformer, disconnecting switches and choke coils are erected close to the motors. These pipe line stations, being of a permanent character, are built and equipped throughout more nearly like the usual industrial installations than is common among other oil field power applications.

Loading rack pumps range from 30 horsepower to 50 horsepower in the squirrel cage type. Marine terminals for tankers require extensive and relatively large

The Triumvirate of ACCURACY *in* MEASUREMENT

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SIMPLICITY of construction and operation, accuracy of measurement, accessibility of parts, ease of adjustment, wide range of capacity and application,—plus other quite extraordinary features,—give the Metric *ORIFICE* Meters a special importance in the recording of oil and gas flow—attained only by these meters.

PERMANENT accuracy, durability, convenience of handling, varied choice of connections and low cost of upkeep are the outstanding merits of *IRONCASE* meters. They are popular for, and used in great numbers in, measuring gas consumption to drilling wells.

FOR industrial measurement of large volumes of gas at high pressures, *METRICS* are unmatched in capacity, safety, compactness and accuracy. Size and weight considered, they will measure more gas than any other type, or kind, of ironcase meter.

These three Metric Meters are the measuring instruments most depended upon for all kinds of gas and oil measurement, in all types of installations, through all phases of the service being rendered by the gas and oil industries.

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IRONCASE METRIC

TESTED
to Insure Positive TUBING SAFETY

$90 Would Have Saved This Tubing!

Every Guiberson Catcher is tested at the factory by dropping the catcher alone in an empty casing. It must operate within *2 inches.*

This test—NOT IN FLUID and with NO PIPE ABOVE CATCHER to help it operate—is the ONLY test that insures positive safety for your tubing from the moment it enters the well.

Heavy striker weight, strong spring, and dovetail tracks for slips, are *exclusive* Guiberson features which insure operation within 3 inches. Fully patented.

"Better Be Safe Than Sorry"

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pumping equipment, comparable in type and size with pipe line stations. Electricity has not finished here with oil transportation for there are many electrically driven tankers in service where the advantages of the electric motor for speed change, speed adjustment and reversing are made use of, though the prime mover is only a few feet away from where its power is applied.

Gasoline Plants

Natural gasoline producing plants utilize great numbers of small direct-connected squirrel cage motors and centrifugal pumps. They are employed as water and oil circulators, product pumps and power station auxiliaries. Where gas engine-driven compressors are used, small motor-driven compressors are used for starting purposes and in some cases they pump water wells by air-lift when not otherwise employed.

Motor-driven compressors of large size are used in some natural gasoline plants and the characteristics, except as to size, follow those of air-gas lift compressor stations. Electric power is sometimes generated in a private gas engine station using generators up to 2,000 kilowatt capacity and having direct-connected exciters. Water circulating pumps and starting compressors are motor driven for such stations, as are the air and water auxiliaries in the boiler houses. Vapor-protected motors and control are available for use in these plants and in refineries.

Refineries present so extensive and complicated a field for motor applications that it is not within the scope of this article to more than enumerate some of the more prominent applications. Pumps of every class, high and low pressure for water, brine, acid and oil products, are found everywhere in a refinery, and nearly all are motor driven. Steam requirements for processes are so great and varied that some motor pumps are duplicated by steam pumps to be run at times to preserve a proper heat balance. The vast quantities of low pressure steam required make it economical to generate at least a part of the required power by back pressure turbine generators. Where the electric power plant becomes a large factor, an exchange arrangement is made with the public utility whereby power may be passed either way with benefit to both. Among the other uses for electricity in refineries are: For driving power station auxiliaries, fans and blowers, compressors, centrifuges, process machinery, Cottrell precipitation apparatus, material handling equipment, yard locomotives and car spotters.

Among general applications of power in the oil industry may be mentioned electric arc welding. Welding sets are a common adjunct of every major activity in the oil industry. They are used in hundreds of practical operations along the lines of construction and repair.

Radio communication is now being used in a practical way in the oil fields to supplement the telephone and telegraph, and, in some cases, to supplant them.

Electric heating is only just beginning to find its place in the oil industry and, as research and practice advance, this utility will take its place with light and power. Portable motor units for various purposes are now being applied in the field and in the refineries. Research work that is being carried on by electrical manufacturers on a scale impossible in most industries, is resulting in improved metals, better lightning protection, and in reducing costs of material used by the oil industry.

In keeping with the general statements as to the breadth of the effects of electric drive on all things used in the oil industry it may be noted that the paper on which this article is printed was made wholly by electric power and the presses that printed it are kept humming by electric motors.

NAVY ASKS TO SHARE OFFSETS TO TEAPOT

Under the terms of the court decree returning Naval Petroleum Reserve No. 3 to the Navy signed by Judge Kennedy, in Cheyenne, Wyo., the United States receives $3,000,000 in Liberty Bonds and approximately $100,000 in cash from the receivers, Capt. H. A. Stuart, United States Navy, and Albert E. Watts.

The court ordered that the receivers' accounts be closed as of December 31, and that the receivers incur no liabilities after December 31.

In line with the policy in accordance with which the Naval Petroleum Reserves were established, the Navy Department proposes to shut down as soon as it can be arranged, the 60 producing oil wells in Teapot Dome Reserve. These wells extend into the shale and are not draining the producing lower sands.

The Navy Department is negotiating with operators producing from leases adjoining Teapot Dome that a proportion of production from these wells should be turned over to the Government, as it is probable that some of the oil is being drawn from Teapot Dome. Operators have refused to accede to the proposal.

The receivership which was terminated December 29, has lasted since March, 1924, a period of over three years and nine months. The receivership assets of $3,100,000 have been derived from the sale of production from the receivers' wells in Reserve No. 3, and from interest on United States Liberty Bonds.

In accordance with the court decision the decree provides for an accounting to the Government by the Mammoth Oil Co. for the value of oil and other petroleum products taken under the lease and contract which have been voided. It is understood that this additional amount is about $2,250,000.

In order to shut down the wells and close up operations Capt. H. A. Stuart, who is now in Wyoming, estimates that the expenditure of about $50,000 of Navy funds will be necessary. This work will be undertaken at once. Naval Reserve No. 3 comprises about 9,300 acres. In addition to this valuable property, improvements thereon, costing several millions of dollars, and storage tanks at the Portsmouth, N. H., Navy Yard, having a capacity of 300,000 barrels, have come into the possession of the Navy Department.

It is said that no contract for future development of Teapot Dome will be on such advantageous terms as the one Mammoth Oil Co. made with the Government. Drilling of some 80 wells by Mammoth Oil proved Teapot Dome does not contain the great quantities of oil it was thought to hold and no developing company would again make the terms embodied in the Mammoth lease.

Domestic Exports of Coal and Petroleum and Refined Products

		November		11 Mos. Ended Nov.	
		1926	1927	1926	1927
Crude petroleum	Bbls.	1,343,447	1,280,127	14,123,069	14,126,098
	$	2,560,518	1,845,409	26,206,630	22,987,691
Total refined petroleum	Bbls.	11,437,031	9,936,442	98,972,553	107,050,129
		43,255,933	34,650,306	455,783,525	399,908,206
Gasoline, naphtha and other light products	Bbls.	3,703,122	2,659,865	39,112,183	40,405,596
	$	21,308,296	15,591,400	243,084,693	196,828,181
Illuminating oils	Bbls.	2,021,489	1,815,329	20,180,728	18,053,145
	$	8,631,918	6,775,606	92,286,548	73,661,575
Gas and fuel oils	Bbls.	4,904,113	3,664,754	31,208,648	39,615,943
	$	6,428,543	4,131,967	40,818,428	46,147,779
Lubricating oil	Bbls.	797,817	785,706	8,353,015	8,836,700
	$	6,723,398	8,008,691	77,859,772	81,516,247
Other refined petroleum	Bbls.	10,490	10,788	117,979	134,745
	$	163,778	143,242	1,734,083	1,754,424
Paraffin wax	Lbs.	25,386,692	32,540,692	307,174,082	309,728,337
		1,601,194	1,313,322	17,321,964	13,806,056

"Sully," the Chemist, Says

KONSET

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Again, the dependability of KONSET in assuring a permanent, hard, solid and waterproof cement casing has been boldly outlined. In well after well, the suction of Air Lifts has disintegrated the casing, but in not one well in which the cement has been treated with KONSET has the Air Lift had any injurious effect.

KONSET is an entirely different, scientific cement mixing compound. It not only accelerates the set, saving 12 days or better, it waterproofs, hardens, strengthens and solidifies, permanently protecting from bottomhole water or acids. As a preventative of corrosion, on pipe lines covered with cement, it has long been used and highly recommended.

Other Sulco Products include: SLUSH-MIX, the improved mud-heavier; KLEEN-A-WELL, for cleaning tubing and rods; BLACK JOE, rust preventative for concrete and metal, SULCO DRILLING MUD, and a complete line of paints for oil-field needs.

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When it is desired to use economical, quickly erected tanks for permanent storage requirements, MALONEY Bolted Steel Tanks are especially advantageous because of their exceptional durability. The Keystone Copper Steel of which MALONEYS are made is *long-lived* sheet steel and insures economical, safe storage over a long period of time.

Among Maloney mechanical advantages are the patented Maloney "crimp" which promotes accurate fit of parts at seams and joints, reinforcement of seams with rigid steel channels, cantilever construction of deck trusses for the larger sizes, and special oil-heat-treated bolts of 90,000 lbs. tensile strength. Tightness is insured by our specially developed rubber packing and Gaso cement. Cleaning-out plates are large and set flush with bottoms. Maloney Special Pearl Gray Paint reflects heat and minimizes evaporation. Valve and thief-hatch equipment are the best the market affords.

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MALONEY
"ALONE"

SURVEY OF IMPERIAL OIL OPERATIONS IN CANADA, PERU AND COLOMBIA

By C. O. Stillman
President, Imperial Oil, Ltd.

The steady decline in Canada's petroleum production, which manifested itself from the years 1907-1924 and which was directly attributable to the gradual exhaustion of the Ontario fields, was arrested in a spectacular manner by the bringing in of Alberta's wonder well, Royalite No. 4.

In 1924 the total Canadian production was 160,773 bbls. from approximately 2,500 separate wells. In 1925 the Royalite well alone produced 168,722 bbls., in 1926, 200,469 bbls., and an estimate, based on the present performance of the well, places its 1927 output at 216,000 bbls.

This acquisition has not only enabled Alberta to usurp Ontario's place in the production column, but has more than doubled Canada's quota in the past two years, the figures being: 1924, all Canada, 160,733 bbls.; 1925, all Canada, 332,001 bbls.; 1926, all Canada, 339,000 bbls.

But the Royalite well did more than merely inflate the statistics. It provided a new impetus to those who were backing a hunch that Alberta must in time yield her riches to their pertinacity, and gave much needed encouragement to those who patiently and scientifically were working out the geological problems of the province and testing with the drill every favorable structure.

That the first really adequate return for the time and money involved should have been secured by an Imperial Oil subsidiary was perhaps fitting in view of that company's contribution to the common cause, and the intensive operations in the Turner Valley this year witness to the stimulating effect of their initial success.

It is estimated that 60,000 feet of hole have been drilled in the valley this year, half of which is credited to the Imperial subsidiaries. This drilling has not only demonstrated that the productive area for wet gas is of considerable extent, but has disclosed the presence of oil-bearing horizons at lesser depth than the Royalite dolomite, from which it is hoped that a steady and constantly growing production will be obtained.

Turner Valley Output

The potential daily average output of the field is meanwhile written down as 47,000,000 feet of gas, 900 bbls. of crude naphtha and 175 bbls. of crude oil, which is coming from the following completed wells: Home No. 1, oil; Illinois-Alberta No. 1, wet gas; New McDougall-Segur No. 1, oil; New McDougall-Segur No. 2, oil; McLeod No. 1, oil; McLeod No. 2, wet gas; McLeod No. 3, oil; Royalite No. 1, wet gas; Royalite No. 2, wet gas; Royalite No. 3, wet gas; Royalite No. 4, wet gas; Royalite No. 7, wet gas; Vulcan No. 1, wet gas.

Certain wells now drilling, particularly Dalhousie No. 5, Home No. 2, Vulcan No. 2 and Spooner, give promise of adding to the volume of both gas and oil, and it is noteworthy that practically every well located on structure and carried to sufficient depth is a producer, to a greater or lesser degree, of either wet gas or crude oil of relatively high gravity.

The gas production developed is meeting, at least for the time being, Calgary's domestic and industrial needs, and Imperial Oil has found it necessary to enlarge its scrubbing plant to make available larger quantities of the purified product.

Drilling Difficulties

Drilling in the Turner Valley is beset by many difficulties. Climatic conditions and the state of the roads make transportation at times well nigh impossible, and during the year certain parts of the field have remained inaccessible for extended periods.

Cable-tool drilling is favored by most of the operations, but Imperial Oil, after an initial failure with the rotary at its Royalite No. 5 well, seems to have solved the problems affecting this type of equipment, and has made good time with rotary at its Foothills and Royalite No. 7 wells.

The Turner Valley driller is not easily daunted. Fire, flood and explosion may inconvenience him temporarily, but he is there to make holes and sticks to his task.

A notable feat of endurance and engineering skill is the British Dominion well which is now over the 6,000-foot mark, with 6-inch casing practically to the bottom of the hole.

At present about a score of wells are drilling, or in preparation for drilling over the winter, and next spring should see even greater activity in the Turner Valley, with a larger number of completions, as many wells are now at considerable depth.

Other Drilling Activities

Outside of this area, Imperial Oil has been actively drilling at various points without appreciable success.

In the Bow Island gas field and on the Ribstone structure, northeast of Wainwright, deep tests were completed which were commercially unsuccessful, although showings of oil were met with.

Near Jumping Pond, west of Calgary, the Bow River well was abandoned after apparently drilling through a fault, and at Erickson Coulee, near the international border, the test was completed as a gas well.

South of the Turner Valley, the Imperial-Highwood well is still drilling.

The completion of the Devenish well near Skiff, in southern Alberta, as a producer of heavy crude oil, has led to arrangements by which the area may be thoroughly tested in the near future, and a great deal of geological work has been done in the Cypress Hills area, where one well is already drilling.

Imperial drilling operations will be continued, if humanly possible, throughout the winter or to completion at: Royalite No. 6, Royalite No. 8, Royalite No. 9, Royalite No. 10, Royalite No. 11, Dalhousie No. 1, Dalhousie No. 5, Dalhousie No. 6, Foothills No. 1, Home No. 2, Home No. 3, Highwood.

Royalite No. 7, although at present delivering gas into the line, will be deepened as soon as the winter peak is passed, and several new wells will be commenced early in the spring.

Canada's Payments for Crude

The year 1927 has not been especially favorable to the oil industry owing to a world-wide overproduction of crude. United States operators have been hard hit and exploratory drilling has been largely curtailed.

In Canada there is no need for a slackening of our efforts to increase our domestic production, as we send some $50,000,000 abroad annually for the purchase of crude and refined products.

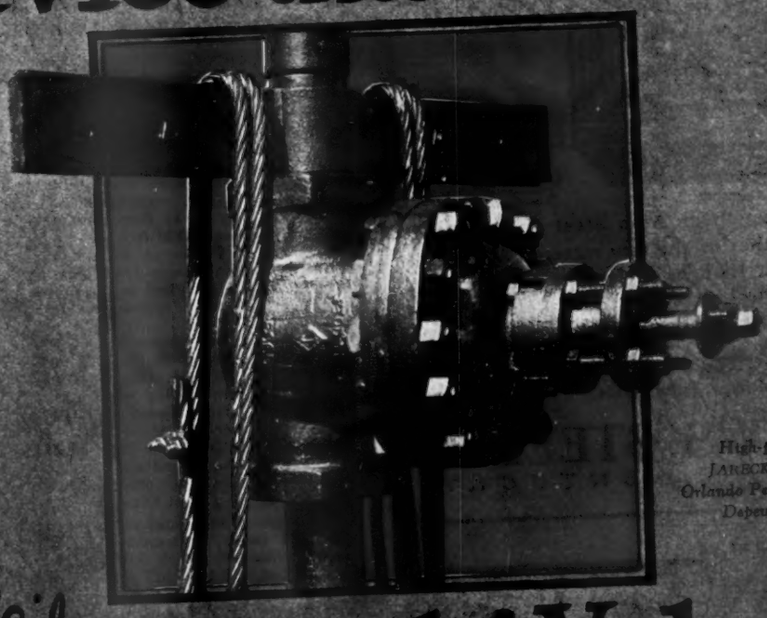
Over 70 per cent of this disbursement is for crude petroleum for the many up-to-date refineries stategically situated throughout the Dominion; gasoline accounts for about 25 per cent, and lubricating oils and certain specific products for the remainder.

Most of our importation is from the States, but recent years have seen an appreciable increase in our shipments of crude from South America, due to the operations of two Imperial Oil subsidiaries, the International Petroleum Co., Ltd., in Peru and the Tropical Oil Co. in Colombia.

Canadian exports of petroleum products are comparatively trivial, being valued at about $2,000,000 in 1926. They consist chiefly of coal oil, kerosene, gasoline and naphtha.

With the necessity to shop abroad for some 98 per cent of our crude oil requirements there is ample incentive for Canadian operators to vigorously continue the development of such fields as have already been defined, and to push their investigations into every part of the Dominion, no matter how remote.

When it's Unusual Service that's wanted



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where the conditions seem favorable for oil accumulation.

International Petroleum in Peru

Mention has been made of Imperial Oil's South American activities.

The prevailing situation in the market for crude led to a curtailment of production, both in Peru and Colombia, but there was no diminution in the field activity in either country, and development of the properties went steadily ahead.

The holdings of International Petroleum in Peru comprise the La Brea y Parinas estate, consisting of some 400,000 acres, and a number of concessions in the near vicinity approximating 850,000 acres.

Work on the latter is still in the exploratory, or wildcat stage, and seven wells are now drilling, while four have been abandoned after unsuccessfully drilling to a total depth of 13,000 feet.

At the close of 1926 there were 1,322 producing wells on the estate.

For that part of 1927 for which complete statistics are available, to October 31, 112 additional wells have been drilled, of which 101 were successful.

The average depth of the producing wells was 1,664 feet and the average initial production was 188 bbls. a day.

The "dry holes" were mostly wildcat locations in outlying parts of the estate and, being designed as deep tests, their average depth was 3,169 feet.

Five of the producing wells had an initial production of over 1,000 bbls. per day, the largest individual well completed in the period under review coming in with 1,900 bbls.

Includes all operations the drilling footage from January to October, inclusive, was 246,034 feet, and on October 31, 46 wells were drilling while a number of strings of tools were employed in cleaning out or deepening old wells.

During these 10 months 20 producing wells were exhausted and abandoned, so that the total number of producing wells was 1,403 at the end of October.

Production being substantially curtailed, the total, to December 15, was 7,408,059 bbls., of which 6,020,482 was high cold test and 1,387,577 was low cold test. The production for the year will approximate 8,000,000 bbls. of which almost 19 per cent will be low cold test oil.

The two gasoline plants will probably add in excess of 17,000,000 gallons to the year's output.

Tropical Oil in Colombia

In Colombia development has been methodically pushed ahead by the Tropical Oil Co. on its De Mares concession, 360 miles up the Magdalena River.

Four separate structures are meanwhile being exploited on the 1,319,344 acres which comprise the company's holdings.

At the end of 1926 there had been drilled 141 wells, 92.2 per cent of which were successful, only 5 dry holes and 7 wells which encountered drilling difficulties being listed as abandoned, since the commencement of operations in 1920.

The first nine months of 1927 have added 61 successful completions. During that period only one well was abandoned, and that on account of drilling trouble.

Of the completed producers, two were on the San Luis, 13 on the La Cira and 46 on the Infantas structure. Twenty-four of these wells had an initial production of over 1,000 bbls. per day, the largest being No. 173 on the La Cira structure, which came in with 5,000 bbls.

The total drilling footage to September 30 was 152,489 feet, and at that date 23 wells were drilling.

As the production up to October 31 was 11,734,323 bbls., the total for the present year should approximate 14,000,000 bbls. compared with 6,443,540 bbls. for last year.

As in Peru, production has been curtailed during the year. Overproduction in the major oil-producing countries is a contributing cause, but the Colombian situation is also governed by the needs of the company's refinery at Barranca, and the capacity of the Andian National Pipe Line from the field to the Coast.

A steady increase is noted in the production of casinghead gasoline, which will be in the neighborhood of 8,000,000 gallons for this year.

Our Foreign Reservoirs

The extent to which South American fields, or, more particularly, the Imperial Oil subsidiaries operating therein, are coming to the relief of Canada in her present situation, as a large importer of crude oil is impressed upon us by the fact that, in the present year, Peru sent us approximately 2,000,000 bbls. and Colombia 4,000,000 bbls. of crude oil.

The day may come when Canada will be self-supporting, and toward this end Imperial Oil is bending every effort, but until then we have a reservoir to draw from which is being steadily enlarged by Canadian enterprise and capital.

Given more stable conditions in the industry during the coming year, we can look forward to a steady expansion of our activities abroad, along with a systematic development of our known resources, and continued endeavors to locate new sources of supply in our own dominion.

SOFT COAL OPERATORS ASK TRUST LAW CHANGE

WASHINGTON, D. C., Jan. 7.—Suspension of the operation of the antitrust laws so far as relates to the soft coal industry so that the mines can combine and function co-operatively will be proposed in indentic bills to be introduced in the Senate and House by Senator Copeland and Representative Jacobstein of New York, who have issued a joint statement saying:

"By the bill which we will introduce, it will be lawful, but purely voluntary, for bituminous coal mine owners and distributors to organize themselves into co-operative trade associations.

"These associations will be permitted by law to regulate, not only the mining but the marketing of coal. If these associations function properly many of the high cost mines will go out of business. Many of the surplus workers will be transferred to other industries by an intelligent and humane procedure. The drawing into the industry of casual labor in boom times will disappear.

"We believe that through these co-operative associations the great waste that now occurs in cross hauling of coal across the country will be eliminated. Many million of dollars are wasted each year by shipping Pennsylvania coal into Illinois and Illinois coal into Pennsylvania, or West Virginia coal into both of these areas.

"Our bill is purely voluntary. It compels the industry to do nothing, but encourages the mine owners to go ahead, organize and put their house in order. Mine owners and distributors who do not desire to avail themselves of the privileges under the law, will be left in the same position they are in today."

JEFFREY DAVIS FOUND DEAD

Jeffrey Davis, aged 68, of Pittsburgh, Pa., an oil pumper, was found dead in the pit of a well on the Windgap Road near Pittsburgh. He was believed to have been caught by the belt on the pump and dragged into the pit. He was well known in the Pittsburgh district where he had several large oil properties. John Davis of Bartlesville, Okla., is a brother.

ORDERS METERS INSTALLED

MEXICO CITY, Mexico, Jan. 6.—President Calles has issued a decree through the minister of finance obliging oil companies to install automatic meters on their pipe lines to determine payment of federal taxation on crude oil and refined products. The minister is charged with fixing the type of meters used.

Select Your Pump To Fit Your Individual Well Conditions

D+B

Quality First PUMPS

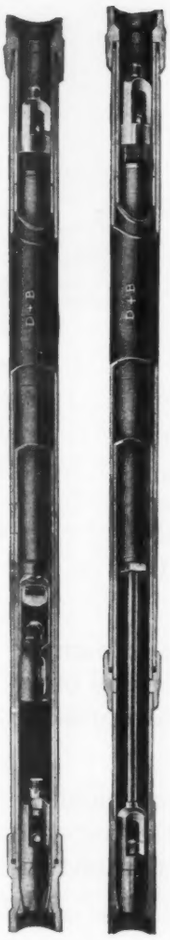

Fig. 1

Fig. 2

Trying to make one type of pump serve efficiently in all wells is like trying to make one shoe fit all feet. It simply can't be done.

Twenty-one years of specialized pumping experience has proved that different well conditions require different types of pumps to insure maximum production at minimum cost. You cannot change the conditions of your well, but you can select a pump from the D & B line that is exactly suited to your well conditions.

FOUR D & B LEADERS

Regular Style: (Fig. 1) Made up so that the standing valve seats directly into the lower shoe, or collar. Fitted with a Thompson Gas Valve and Standing Valve Puller. Elimination of Garbutt Rod enables spacing plunger for as long a stroke as length of pumps permits. Location of balls and seats in plunger and standing valves eliminate gas pockets. Furnished with any number of fitting hook-ups.

Parker Style: (Fig. 2) Standing valve in long steel extension shoe, below the bottom collar. Use of extension shoe permits testing the exact fit of standing valve body as when pump is made up. Nipples of varying length give any length of stroke desired. Equipped with Garbutt Rod for pulling the standing valve.

C S W Style: (Fig. 3) Fitted with either a Garbutt Rod or a Thompson Gas Valve as illustrated. A combination of D & B pump and gas anchor and particularly useful where there is gas to handle. "Fit-up" shown is designed to make the fluid travel faster and prevent it from getting back around plunger.

Simplex Insert Pump: (Fig. 4) Particularly adapted to keep well pumping. Goes in and out of the well on the rods, eliminating tubing jobs. Eliminates gas locks. Prevents sand from settling. Special plunger bottom valve eliminates churning, paraffin in tubing, and B. S.

Tell us your well conditions and we will fit those conditions with a pump that will insure maximum production at minimum operating costs. A type for every pumping condition.

Fig. 3

Fig. 4

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BRANCH STORES.

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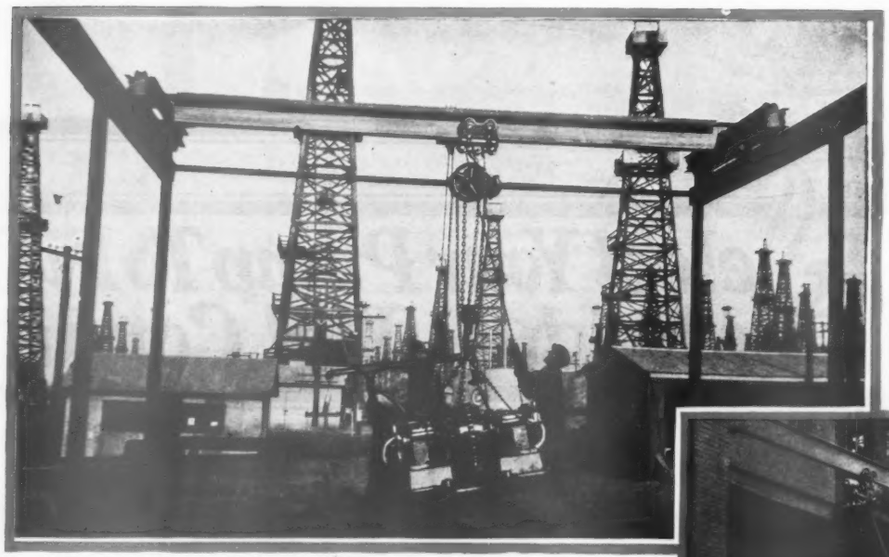

A "C-M" Cyclone High Speed Chain Hoist and Matchless Timken Bearing Trolley at the United Oil Company, Long Beach, Calif.

No effort and only a minimum of time required with a "C-M" Electric Hoist

Treat 'em Rough— They Like It

YOU don't have to be careful of a Model K Cyclone Hoist. They're built to take all the punishment you can give 'em.

In a standard test the one-ton Model K Cyclone was operated continuously for 320 hours—a total of 38,400 one-ton loads—at a speed considerably faster than hand operated and made purposely jerkey to simulate the hardest field conditions.

When taken apart for inspection only slight wear was found on several minor parts—it was not necessary to replace any part to put the hoist back into service.

It's the special alloy metals, the constant grease packing, the anti-friction bearings in all rotating parts and the gyrating yokes that do the trick.

No, sir, you don't have to pamper a Model K Cyclone—or any other piece of C-M material-handling equipment.

There's a C-M material-handling expert in the oil fields that will give you a first hand demonstration. Write

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All Leading Oil Supply Jobbers Stock "C-M" Overhead Material Handling Equipment

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CHAIN HOISTS — CRANES, TROLLEYS, CUPOLA CHARGERS — ELECTRIC HOISTS

DRILLING FOR GAS IN APPALACHIAN AREA WITH CABLE TOOLS DESCRIBED

By E. W. Williamson
Assistant General Manager, the Peoples Natural Gas Co.

Most of the oil and natural gas obtained in the Applachian Field comes from leaseholds. There are, however, exceptions to this general statement, as some of the oil and gas companies own the oil and gas rights in fee. A large part of the prospective territory in the Appalachian Field is now under lease. When a company finds it advisable to drill on a lease, due to its production possibilities and favorable location, its immediate expiration without possibility of renewal, its close proximity to productive territory operated by a competitor, or to some term of agreement in the lease, the geological or engineering department is notified. This department studies the conditions as to other operations in the vicinity, taking into account the structural conditions. To the land department is given notice of the management's intention to drill a well on a certain lease, which department, in turn, requests an abstract of title of this particular lease. After the abstract has been received from the land department and has been termed "safe to operate" by the legal department, the engineer and geologist go on the ground, select, and make a location which appears to be as favorable as can be had from a geological standpoint, taking into consideration, however, the supply of water required to drill a well, the topographic features for the location of the rig and its accessibility. After the stake has been driven, the field foreman is given instructions to proceed with the drilling of the well.

Build Permanent Road

A gang of men with teams, tractors, or other devices, are sent out to build a permanent road to the location. In the meantime, the management has decided whether the company will drill the well or contract it to be drilled. If the well is to be drilled by contract, a reliable contractor is found and an agreement signed. The contract is generally based on a certain price per foot for a completed hole. The company sometimes furnishes the rig and casing (this is not a set rule). The rig is then moved to the location and erected. There are a great variety of drilling derricks or rigs in use today, but all of them can be placed in two classes, "standard" and "portable." Under the "standard" rigs are the bolted steel rig, tubular steel rig and wood rigs. The "standard rig" is 80 feet high, 20 feet square at the base and 4 feet square at the top. A standard wood rig, including timbers, contains about 21,000 feet of lumber. After the rig has been completed, the contractor moves in his drilling equipment which is described in the following paragraphs.

Type of Boiler Used

The locomotive or "T" type of boiler is used almost exclusively in this field. It is sometimes mounted on wheels so that it can be easily moved from one drilling location to another, while at other times it is loaded on a wagon and hauled. These boilers are rated from 30 to 40 horsepower, with an allowable working pressure of about 125 pounds per square inch.

Water is supplied to a drilling well, either directly from a near-by creek or well, or through a water station consisting of a gas engine water pump which may be installed some distance from the well, and a water line usually 2 inches in diameter laid from the source of water to a storage tank of about 250 bbls. capacity, about two days' supply. In some instances, water is transported for several miles to a drilling well. The fuel used for drilling wells may be either coal or natural gas. If coal is used, a supply is kept on hand and is consumed at the rate of about 4 tons per 24 hours. If natural gas is to be used, a line is laid from a supply to the well. This distance varies from a few feet to several miles. A 2-inch line is usually used.

Engine

A 30 to 40 horsepower steam engine is used. The proposed depth of the well has much to do with the type of equipment to be installed.

In recent years the gas engine is replacing the steam engine in this field for drilling wells. These engines vary in size from 65 to 100 horsepower.

Some of the advantages in favor of the gas engine over the steam engine are the saving of fuel, the saving of time starting the week's work after a shut-down over Sunday, and the saving of time and labor in transporting a boiler to and from the location.

Electric Lights

The electric lights around a drilling well have replaced the old-time torch and open gas lights. Nearly all drilling wells are equipped with a small dynamo which supplies lights for the entire operation. This is a very important step taken towards "safety first."

A string of tools consists of a rope socket, jars, drilling stem and bit. These different tools are joined together by means of box and pin connection. Since different size tools are required for various sized holes to be drilled, it is necessary to have sets of various sizes of tools on hand. The tools are put together and taken apart by means of tool wrenches, jack, circle, etc.

The top of the string of tools or the part which connects the rest of the string to the drilling cable is known as the rope socket.

It is common practice to place a set of jars between the rope socket and the stem when drilling. They are constructed so as to permit a sliding motion which tends to jar the tools loose when they have become "stuck" in the hole. When used for fishing purposes, the jars are usually placed below the stem so that a heavy blow can be delivered by the tools.

The stem is the next tool below the jars, and is made of solid steel weighing from 1 to 2 tons.

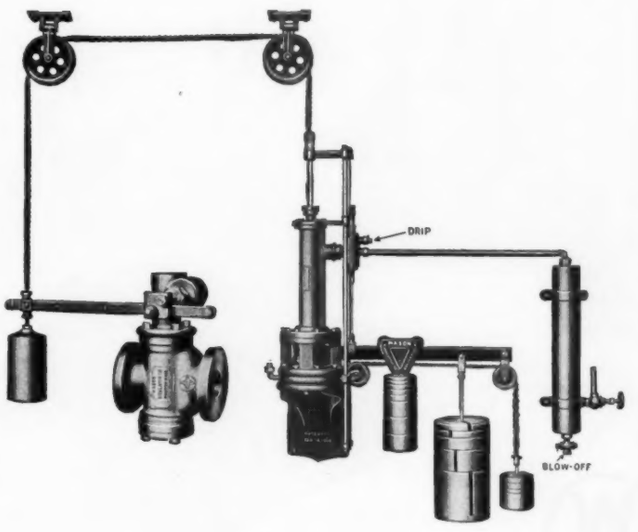
Bits

The bit is attached to the lower end of the stem. The bits are dressed in different ways in accordance with the idea of the driller and nature of the formation through which it is to be drilled. In some cases the bottom edge is beveled, and in other cases, it is dressed concave. In drilling, it is the tool dresser's job to keep the bit up to gauge, so that hole will be kept true, and so that reaming will not be necessary before placing the casing in the hole. If the bits are much out of gauge, the hole will become conical, and if a new bit, dressed to gauge, is then run into the hole, it will stick and cause considerable trouble in getting it loose.

The above outfit just described is known as the "churn drill" or "standard cable tool outfit" for drilling.

The well is usually started by means of a jerk line thrown over the crank, the engine when in motion raises and drops the tools. This is termed "spudding in." After the tools are buried in the hole, or a solid ledge of rock encountered, a conductor is placed through which the drilling is resumed, until such a depth necessary to place casing in the hole. Conductors are either square or octagonal wood boxes, the diameter of which is determined by the size of the hole to be drilled, and the length depends upon the nature of the formations penetrated during the first few feet of drilling. A piece of casing is sometimes used as a conductor, and may be one, two or more joints. Some localities require the use of drive pipe when quick sand or other loose earth is encountered. The drive pipe is heavy casing, fitted with a steel shoe on the bottom and is driven by means of the

For
Close Regulation
of
Gas-fired Boilers



The Mason No. 130 Regulator, operated by oil or water, and used in combination with a Mason Style E Rotary balanced valve, gives accurate, positive control of gas or oil fuel under the most severe service conditions.

In the more permanent boiler plants throughout the various branches of the oil industry, this combination has proved indispensable.

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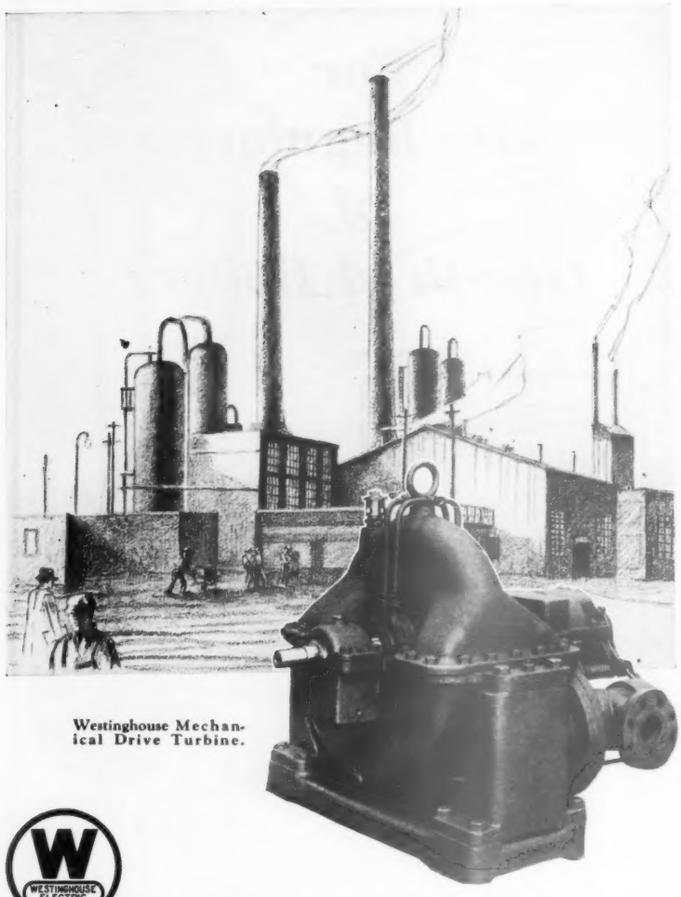

Westinghouse Mechanical Drive Turbine.

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Mechanical Drive Turbines

WESTINGHOUSE type "AMD" turbines offer many advantages for operating your refinery pumps.

The turbine is supported at the center line. This maintains alignment.

The glands are water sealed, consequently no packing to replace.

An emergency overspeed governor is included with every turbine.

These and many other features are fully described in Leaflet 3907-C. Write our nearest office for a copy.

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tools. When this method is used, the drive pipe follows the hole as it is drilled.

Spudding In

The "spudding in" process continues to a depth of about 150 feet, at which point the tools are hitched to the walking beam, and the regular method of drilling started.

Various sizes of bailers (11 inches by 22 feet, 9 inches by 25 feet and 5½ inches by 25 feet) are required, depending on the different size of hole necessary to complete the well to the desired depth. After the drilling progresses, the cuttings become mixed with water and form a thick mud, called "sand pumpings." Drilling is continued for about 5 feet at a time. The bailer is then lowered into the hole and the sand pumpings bailed out. It is necessary to run the bailer several times to get the hole thoroughly cleaned.

Power and Its Transmission

From the boiler, steam, if used, is applied to the engine, which, in turn, transmits its power to the band wheel by means of a belt, usually 12 inches by 95 feet. By use of a crank and pitman, the walking beam is set in motion and the tools, being connected to it by means of a temper screws attached to either manila cable or wire line, are raised and dropped, thus drilling through the formations encountered as the cable is lengthened.

The band wheel transmits power to the bull wheels by means of rope tugs, known as the "bull ropes." The bull wheels with a brake attachment are used to run the tools and pull them out of the hole. The bull wheels are also used in running casing. The sand reel obtains its power from the band wheel, and is used to lower the bailer, by means of a small wire line, termed "sand line," into the hole to clean out the sand pumpings.

It is necessary to have a complete supply of fishing tools on hand or at a near-by warehouse, as very few wells are completed without some fishing. There are a great many conditions which can take place that might require fishing, such as the losing of tools in the hole, due to breakage of some part of the string, parting of the line, cavings and many other things which space here prohibits enumerating.

Fishing Tools

New tools for difficult fishing propositions are being constantly placed at the disposal of the driller, the horn socket, slip socket, various types of latch jacks, swedges, spears, casing cutters, etc. These are a part of the common equipment.

Some wells are started with an 8, 10, 13 and 16-inch hole, depending upon many conditions. If it is necessary to protect certain coal seams, the well must be started with a larger hole than ordinary. The average well in the Appalachian Field, however, is drilled to a depth of about 3,000 feet, using three strings of casing, 10, 8¼ and 6⅝-inch, and one string of tubing, ranging from 2 to 4 inches. In running casing, it is necessary to have a set of blocks, casing line, set of elevators, etc. Great care must be exercised in placing the various strings of casing in the hole, as serious trouble and much delay might be the result. Casing is used to shut off cavings or water, to protect coal seams from gas and to confine the gas. It is necessary for the future maintenance of the well to keep an accurate measurement of all casing put into it. The casing is lowered into the hole, joint after joint as it is screwed together. It is quite necessary to see that each joint is properly connected and gas tight. Either a steel casing shoe or a packer made of rubber and steel is placed on the bottom of the string of casing. The casing is lowered to the proper depth in the hole, and is there seated and sealed, making it gas-tight inside and water-tight outside. From this point, drilling is so continued until it is necessary to run another string of casing, or until the producing sand is reached.

If the well is productive of natural gas, it is usually tubed with pipe varying in size from 2 to 4 inches, and is connected to the gathering mains of the company, and the production utilized. If the well produces oil, and it does not flow, as is the general case today, the well is equipped with a pumping outfit, delivery tanks and storage tanks. In some cases each well has its own pumping outfit, while in other cases a number of wells are connected and operated through a central power unit.

A complete record of the formations drilled through are kept by the drillers and recorded in a record book, kept at the well for this purpose. A steel line measurement is taken on all coal seams, all lime horizons, and the principal oil and gas bearing formations. All gas or oil shows are tested by means of gauges and reported to the management, who, in turn, advises whether or not to "shut in" the well or continue drilling.

Drips Near Well

A gas well should not be connected to the gathering pipe line system without using a drip line from the well, notwithstanding the fact that the gas appears to be absolutely "dry." This drip should be placed three or four joints distant from the well. The lengths and size of the drip is dependent entirely upon the amount of water in the gas.

If, during the life of the well, the production suddenly decreases, the well is thoroughly tested and an effort made to determine the cause. This may be due to many things; some of which are water, cavings, salt bridge, etc. The water may enter the well through the producing sand, or from some other horizon and stop the flow of gas. In this case, it is necessary to move in a bailing outfit and bail the well. If the flow of water is very great, it might be necessary to establish a permanent bailing outfit or a pumping outfit. Another possibility is that the casing has become defective and the water is leaking through it. In this case, it is necessary to pull the casing and repair it or run a smaller string of casing or tubing through the defective string. In case the hole is bridged or filled with cavings, it is necessary to move in a standard rig or portable drilling machine to clean it out and make the necessary repairs.

If, after the well has been cleaned out, repaired and tested, it does not show profitable production, a study of the surrounding conditions is made and if deemed advisable, the well is drilled deeper. If the well has been drilled through all the producing sands, and still does not produce in commercial quantities, it is plugged and abandoned in accordance with the various state laws.

After the well is abandoned, all material is removed from the location and the site cleared.

Thus, we have the cycle of one of the many thousands of wells drilled in the Appalachian Field.

MID-CONTINENT OIL AND GAS ASSOCIATION

William N. Davis of Bartlesville, vice president of the Phillips Petroleum Co., was re-elected president of the Mid-Continent Oil and Gas Association at the annual meeting of the parent body held in Tulsa. Mr. Davis has successfully filled the office for the past five years.

W. H. Francis of the Magnolia Petroleum Co., Dallas, was chosen first vice president; C. C. Herndon, executive vice president of the Skelly Oil Co., Tulsa, second vice president; and M. J. Grogan of Shreveport, La., president of the Louisiana Oil Refining Corp., third vice president. Harry H. Smith of Tulsa, general secretary-treasurer and chief counsel, was re-elected.

CONCESSIONS IN BOLIVIA

Bolivia Concessions, Ltd., has proposed to colonize and develop over 30,000,000 acres of rich agricultural, forest, cattle-raising and oil lands at the head of the Paraguay River, Bolivia. This is stated to be the largest concession ever granted by a foreign government to a British company. Exports and imports are duty free for 25 years.

A CHAIN—

An old maxim adds, is no stronger than its weakest link.

Each link of a set of Spang Weldless Jars is an endless weldless unit of special alloy steel, forged integral with its mate and then carefully heat treated.

A pair of equal weldless links.

Are you using the strongest jars made today?

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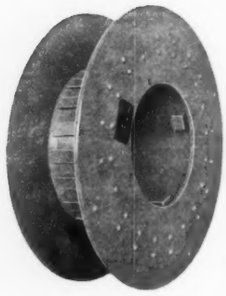
Sold By All Leading Supply Houses

The UNITED SPARTA DRILLING MACHINE!



—WITH A BULL WHEEL

THE Bull Wheel is driven through heavy gears and pinion mounted on pinion shaft, and arranged to be thrown in and out of gear through a lever operated from front of machine in easy reach of driller. Calf Wheel is driven from pinion shaft through steel pinion and gear. Is under main frame, back of sand reel, and so geared as to have a great power for handling long lines of pipe. Bull Wheel flanges are steel plate 52″ in diameter. Bull Wheel gear is 5″ in diameter, with 4″ face, 2⅛″ circular pitch. Bull Wheel brake is 46″ in diameter, 12″ face for 12″ brake band. Bull Wheel Drive is arranged to pull tools from well at any speed up to 400 feet per minute.

—AND A SAND REEL

Sand Reel is driven through a band friction clutch mounted on pinion shaft and through hardened steel roller chain running on cut steel sprockets. The band clutch gives a flexible control of sand reel and allows bailer to be pulled at any speed ranging up to 750 feet per minute. This clutch and the band brake on sand reel are controlled through one lever, the brake releasing when clutch is engaged and the brake applying when clutch is released.

CHAIN DRIVE TO PINION SHAFT

Pinion Shaft is driven with hardened steel roller chain running on cut steel sprockets. This method gives a friction drive through the disc clutches and does away with the thrust on pinion shaft and band wheel shaft bearings, resulting in greater speed with less power employed. Drilling and spudding crank is driven through twin disc clutches with 16″ belt from driving pulley 26″ in diameter, 16½″ face, mounted on driving shaft, to band wheel 90″ in diameter by 16½″ face.

Manufacturers of RIG IRONS and STEEL EQUIPMENT STEEL TANKS DRILLING MACHINES SWAB BARRELS

A COMBINATION DRILLING AND SPUDDING MACHINE

CIRCULAR TELLS ALL!

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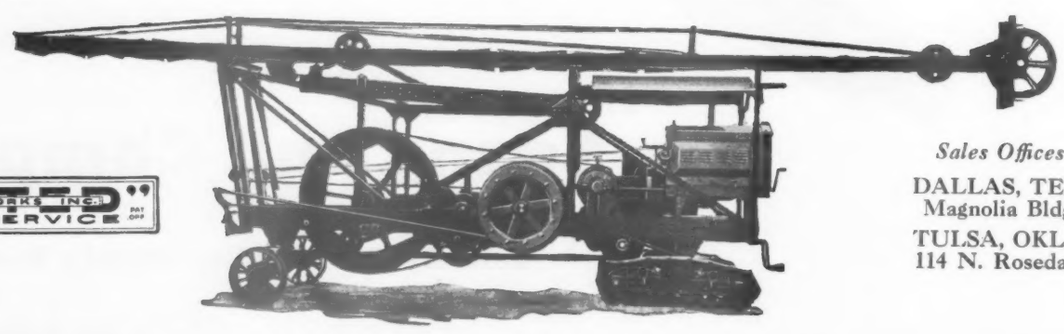
KANSAS CITY, MO.



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SOUTHWEST WILDCATS

(Continued from Page 46)

test. It had only a little gas and tested water.

Duval County

R. Driscoll's No. 9 fee, Survey 23, located 1,750 feet to west line and 2,000 feet to south line, is location; No. 10 fee, Survey 448, is location 850 feet to east line and 2,300 feet to south line, and has rig up. Milo E. Trussel, Trustee's No. 1 Moody, NW NE, Survey 60, located 175 feet to west line and 150 feet to north line, is feeling for sand around 2,370 feet. National Oil Co.'s No. 1 Ball, Survey 16, located 450 feet to north line and 150 feet to east line, was to resume drilling January 2 at 40 feet.

Jim Hogg County

Paesano Oil Syndicate's No. 1 Campbell, Las Vivoritas grant, is drilling at 3,005 feet. T. G. Shaw's No. 1 Jones, Survey 381, Block 12, located 171 feet to south line and 486 feet to west line, is drilling at 1,020 feet.

Starr County

Kusch Exploration Co.'s No. 1 Frant Doyno and others', Porcion 75, Block 13, is drilling water well. Clark & Woodruff's No. 1 Kelsey, Porcion 76, is standing at 1,460 feet. J. E. Harston's No. 1 Guerra, Survey 43, located 660 feet to south line and 1,320 feet to east lines, is standing at 500 feet.

Atascosa County

Eckert and associates' No. 1 C. T. Tom, located 2,700 feet west of the highway and 200 feet to north line of the farm, has resumed drilling.

Bastrop County

Noack & Laning's (Kelly) No. 1 Roemer, Isaac Casner league, 150 feet to north and east lines, is shut down at 1,935 feet. Young & Owens' No. 1 Ed Jones is moving in 9 miles west of Bastrop.

Bee County

D. Hewitt's No. 1 G. A. Ray, 1½ miles northeast of Pettus, is shut down at 2,303 feet; No. 1 Schultz, 3½ miles north of No. 1 Perry of the Red Ant Oil, is rigging up, this test was first reported as No. 1 Hicks. F. Nichols' No. 2 Hicks & Hall, 100 feet north of No. 1, is rigging up. Red Ant Oil & Gas Co.'s No. 1 Perry & Chestnut, B. Q. Hadley Survey, 6½ miles west of Pettus, at 805 feet has moved in new rig and is to resume drilling at once.

Blanco County

C. W. Bates' No. 1 Herman Massey, Henry Manton Survey, 920 feet to north line and 660 feet to east line, has derrick up and rig ordered out. Robert A. Rodson's No. 1 Glasscock, Survey 50, located 150 feet to CEL, has derrick up and rig on the road.

Caldwell County

Alexander-Lyles & Adams' No. 1 McConnel, William Spillars Survey, has been spudded in. Dickinson & Smith's No. 1 Martin Callahan, Willard Cooper Survey, is moving in. Detex Oil Co.'s No. 1 Hardeman, 4 miles north of Luling, shot at 3,075 feet is waiting to clean out. Charley Hirtz' No. 1 Will Parr, 3 miles north of Lockhart, is location 2,700 feet east of Austin road and 200 feet to north line of farm. John S. Storey's No. 1 Mrs. Thomson, John Lawrence Survey, is location 150 feet to north line and 600 feet to east line. The Texas Company's No. 1 E. A. Robuck, Ben McCulloch Survey, has been spudded in.

DeWitt County

Empire Southern Oil Co.'s No. 2 Smith, Survey 3, at 2,960 feet is trying to make a well, setting new liner. Williams & Gates' No. 1 Gohmert, G. W. Brooks league, sold to other interests at 760 feet has crew cleaning out hole and will resume drilling.

Dimmitt County

Humble Oil & Refining Co.'s No. 1 City National Bank, Survey 654, located 700 feet to north line and 2,000 feet to east line, at 4,468 feet is waiting on casing.

Edwards County

Devil's River Oil & Gas Co.'s No. 1 Perney, C. C. S. D. & R. G. N. G., Section 167, located 2,640 feet to north line and 660 feet to west line, at 400 feet hit oil showing, estimated good for part of a barrel.

Frio County

Lain & Brown's No. 1 Edwards, Hooper & Wade Survey, 920 feet to CNL, is standing at 1,250 feet.

Fayette County

National Oil Co.'s No. 1 J. C. Melcher, S. M. Williams League No. 1, located 300 feet to north and east lines of farm, will begin work at once. Williams & Phalon's No. 1 Cervenks, F. C. S. L. Survey, Block 97, is location.

Gonzales County

L. L. Jones and others' No. 1 Campbell, Moore & Bridges Survey, at 1,980 feet is preparing to core.

Guadalupe County

F. A. Lain's No. 1 Weinert, W. K. Estell Survey, 150 feet to CNL, is drilling at 3,017 feet. Eugene Sights' No. 1 Fred Kruger, Isaac Baker Survey, 450 feet to north and west lines, is shut down at 2,500 feet. H. H. Temple's No. 1 McAllister, Edwards Kellett Survey, 450 feet to northeast lines and 1,420 feet to northwest lines, is drilling at 2,021 feet.

Hays County

J. E. Rodgers' No. 1 Hohenburg, 2½ miles east of San Marcos, is shut down at 2,141 feet in Trinity.

Jackson County

J. B. Douglas' No. 1 C. O. Lowrance, 12 miles northwest of Edna, has machinery on the ground.

Karnes County

Reynosa Oil Corp.'s No. 2 Butler, Block 43, located 1,000 feet south of No. 1, has resumed drilling at 1,947 feet.

Kerr County

Walker-Van Duyn's No. 1 Barfield, B. B. Peck Survey, 4,700 feet to north line and 450 feet to east line, is drilling at 1,050 feet.

LaSalle County

E. V. Chenoweth's No. 1 fee, Survey 58, located in the north central part of the lease out of the Irwin ranch, has been spudded in. Sun Oil Co.'s No. 1 Washburn, Survey 157, located 3,500 feet to north line and 3,400 feet to west line, is drilling at 3,170 feet.

Live Oak County

War. Wood Hunt's No. 1 McNeil (formerly Delta Oil Co., Inc.), Jane Curry Survey, 4,000 feet to NE cor., is drilling at 1,150 feet and showing little oil and gas. Houston Oil Co.'s No. 2 Brown Land & Cattle Co. is drilling at 636 feet.

Medina County

Pat M. Armstrong's No. 1 Mangold, Survey 62, located 200 feet to south and east lines, is putting on rotary at 510 feet. F. Banderet's No. 1 Mofield, Survey 532, located 550 varas to east line and 950 varas to north line, has drilled water well. Chacon Oil Co.'s No. 1 Jungman, Survey 31, located 950 feet to west line and 600 feet to south line, at 768 feet is showing little oil; No. 2 Jungman, Survey 31, located 1,500 feet to east line and 500 feet to south line, is at 1,400 feet approximate depth.

Maverick County

Ryan Consolidated Petroleum Co.'s No. 1 Indio, Survey 14, is drilling at 3,415 feet. Rycade Oil Corp.'s No. 1 Chittim, Section 129, Block 7, is shut down at 4,295 feet for water; No. 2 Chittim, Section 158, Block 7, has set casing at 2,670 feet; No. 2 Sullivan is drilling at 2,484 feet.

McMullen County

Houston Gulf Gas Co.'s No. 1 Lark, has been spudded in. Nelson & Woods' No. 1 Shiner, Survey 48, Block 74, is standing at 1,750 feet.

Nueces County

Alamo Drilling Co.'s No. 1 Gallagher, 10 miles southwest of Corpus Christi on the old Brownsville road, is rigging up to spud in at once. Saxet Oil Co.'s No. 3 Meaney has set casing at 2,322 feet. Perry and others' No. 1 State Land has set 10-inch surface casing at 400 feet.

San Patricio County

Ed R. Herwick's No. 1 Tsesmelis is drilling. William F. Morgan and others' No. 1 Welder is preparing to move in for test about 2 miles east of Sinton. National Oil Co.'s No. 1 Sullivan, J. C. McMullen Survey, 500 feet to SW cor., at 1,805 feet is blocking up derrick, putting on control head and big cement block around casing. Pargee Petroleum Co.'s No. 1 Beall is drilling at 810 feet with 10-inch casing set at 227 feet. George Pickett's No. 1 Garrett is standing at 3,030 feet; No. 1 Whitworth, NW NW, Section 60, is drilling at 1,960 feet. John Sigmund's No. 9 Robinson is drilling below 2,100 feet.

Uvalde County

Pure Oil Co.'s No. 1 J. D. Smythe, Survey 687, located 740 feet to north line and 146 feet to east line, is drilling at 1,260 feet in hard shale.

Victoria County

J. J. Elan's No. 1 Vol Kutchka, 200 feet to CNL of Survey 40, at 200 feet has set surface casing and was to resume drilling January 2.

Val Verde County

East Del Rio Oil Co.'s No. 1 Russell, Section 183, is shut down at 3,210 feet. Independent Operators' No. 1 Whitehead, SE SE Section 30, Block 4, is shut down at 3,925 feet. Magnolia Petroleum Co.'s No. 1 Whitehead, Survey 81, is drilling at 5,570 feet in black shale. O. O. Owens and others' No. 1 Mills, Section 128, Block 1, is drilling at 3,980 feet in sand and shale. W. V. Traves' No. 1 Wilson, Section 115, is drilling at 695 feet.

Zavala County

J. D. Pundt's No. 1 West, Fuentes Survey, NW cor., at 1,310-12 feet is preparing to drill in and is showing both gas and oil. Western Gas & Fuel Co.'s No. 1 West is in the basalt at 876 feet topped at 735 feet.

CANADIAN FIELDS

(Continued from Page 53)

which is 3 feet in the Madison limestone. Dalhousie's No. 5, LSD 16, Section 30-19-2w5, is at 4,820 feet and drilling. Dalhousie's No. 6, LSD 10, Section 13-20-3w5, is at 4,517 feet and installing boilers.

Home Oil Co.'s No. 2, LSD 14, Section 20-19-2w5, after being cemented at 3,157 feet, has started to drill out the cement. Foothills Oil & Gas Co.'s No. 1, SW, Section 26-20-3w5, is underreaming at 1,225 feet, with the bottom of the hole at 3,498 feet.

Making New Hole

Spooner Oils' No. 1, LSD 12, Section 13-20-3w5, has finished drilling up a bailer in the hole and is reported making new hole at 4,890 feet. At this depth the test is some 225 feet in the Madison limestone. The test started drilling at the end of 1926, and was held up 2½ months in the spring of 1927 by casing trouble. Some fair oil showings were met in the upper horizons, a sand at 3,030 feet, in the Dakotas, showing from 15 to 20 bbls. a day of light crude. The drill entered the Kootenay at 3,520 feet, and in the Fernie shale horizon at 4,030 feet got another light crude show, testing 52.76 Baume. Drilling was continued for larger production in the Madison, the top of which was hit at 4,663 feet. The test is somewhat less than half a mile west of the Vulcan No. 1 producer apparently a little up on the inner or eastern side of the western fold of the Turner Valley anticline.

Vulcan Oils' No. 2, LSD 11, Section 13-20-3w5, is at 4,185 feet and drilling in a hard stratum of the Fernie shale formation.

Illinois-Alberta Oils' No. 2, LSD 14, Section 12-20-3w5, is at 1,208 feet and drilling. Illinois-Alberta's No. 1, same LSD, has arranged to sell its wet gas production, and is being connected with the pipe line.

McLeod Oil Co.'s No. 1, LSD 16, Section 1-20-3w5, cable tool test, is reported drilling at 3,180 feet with casing practically to the bottom and some oil seeping from higher levels. There is about 1,200 feet of high-grade crude in the hole. The test had a small pumping production in the Dakota sand around 2,500 feet, but is now being deepened to the Madison limestone, where production is looked for between 3,500 and 4,000 feet. McLeod's No. 3, same LSD, is off the pump and being cleared of paraffin.

Sentinel Oils, Section 8-20-2w5, is reported drilling at 3,285 feet with 12½-inch casing at 3,252 feet, after finishing a short fishing job due to loss of an underreaming tool. Seneca Oils, LSD 1, Section 34-20-3w5, is at 3,720 feet and drilling, with casing following close behind the drill.

British Dominion Oil Development Corp., LSD 4, Section 5-20-2w5, is at 6,170 feet and drilling.

Mayland Oil Co. has a cable tool outfit rigged up in LSD 10, Section 17-19-2w5, and will spud in early this month. The Union Development Co. of Calgary has the drilling contract.

British Capital Interested

It is understood that a group of British capitalists, headed by the Right-Honorable Lord Askwith has taken a large financial interest in Calmont Oils, Ltd., which has a test drilling in LSD 2, Section 1-20-3w5. The test, which entered the Kootenay formation at around 4,600 feet, is reported drilling at 4,660 feet. Three shows of oil and a little gas were met in the upper horizons. The well is the furthest west on the Turner Valley structure, and while overlying formations were somewhat thicker than in the Royalite No. 4, the Blairmore-Dakota formation was 400 feet less than in other wells. Open hole is being drilled for the 8¼-inch casing which is at 4,257 feet. Following the entry of British capital, the directorate has been reorganized, the officers now being: Lord Askwith, president; J. C. Dallas, vice president and managing director; F. C. Birks, secretary-treasurer; and A. G. Clarke, Dr. L. A. Maxwell, F. C. Birks, of Calgary, and Ashworth Anderson, Vancouver, British Columbia, directors. In addition to 740 acres in the Turner Valley Field, the company holds 160 acres in the Moose Mountain area, 850 acres in the Williams area, and some 1,300 acres on the Milk River structure near the Montana boundary. It is probable that the reorganization will be followed by an extension of drilling operations.

In the north end of the field, Stockmen Oils is reported preparing to start No. 2 test in LSD 7, Section 27-20-3w5. Stockmen's No. 1, LSD 1-2, same section, after being drilled to 4,550 feet, has been plugged back to the Dakota formation at around 1,760 feet and finished as a gasser, with a production of approximately 3,000,000 feet a day of wet gas.

New McDougall-Segur's No. 3, LSD 14, Section 12-20-3w5, is reported to have supdded in with a cable tool outfit as a test of the Dakota sand. Nos. 1 and 2, same LSD, both started as potential deep tests, finished as commercial producers in this comparatively shallow horizon; the two producing wells are making an aggregate of about 90 bbls. a day of light crude, and the company is understood to be planning a systematic development of this shallow production. No. 1 got production around 2,595 feet, and No. 2 around 2,625 feet.

Advance Oil Co.'s No. 5, LSD 16, Section 19-19-2w5, is rigged up with a rotary outfit, and will spud in early this month. Okalta Oils' No. 1, LSD 1, Section 1-20-3w5, is at 4,400 feet and underreaming.

Inactive Tests

There are a considerable number of shutdowns in the field, but most of these have been inactive for some time. Big Chief Oil Co., LSD 3-4, Section 5-20-2w5, is shut down at 4,370 feet, pending results at the British Dominion test in LSD 4, same section, which has already got to 6,170 feet without reaching the Madison. Cooper-Nanton Oil Co., Section 20-19-2w5, is at 4,840 feet and has done no drilling for several months; the test is located in the same section as the Home No. 1 producer. Dolomite Oils, LSD 8, Section 1-20-3w5, shut down at 1,850 feet, has been taken over by the Foothills Oil & Gas Co. and will be finished as Foothills' No. 2. Great West Oils' No. 1, SE Section 7-20-2w5, is shut down at 5,370 feet. Most of the summer and fall was spent in an effort to overcome trouble due to some tools becoming stuck in the casing about half way down the well. Some progress had apparently

been made when the weather got bad, and work was discontinued until spring. Highland Oil Co., LSD 5, Section 5-20-2w5, is at 3,020 feet and has added no new hole for months. Apparently this test is also waiting the results from the British Dominion deep test. New Black Diamond Oil Co., LSD 1, Section 3-20-3w5, which started in July, 1926, with a cable outfit, has been shut down all season at 1,380 feet, largely for lack of funds. New Valley Oil Co., LSD 4, Section 6-21-2w5, is at 2,080 feet and held up by difficulties with the fuel supply; it is doubtful if any further drilling will be done until the spring. Okalta Oils' No. 2, LSD 8, Section 1-20-3w5, has a potential pumping production at 2,774 feet; this is an old well drilled at the time of the Calgary boom and should make 10 bbls. a day or better; it will probably be cleaned out and put into production, and the oil used for fuel. Later, if Okalta No. 1 gets production, No. 2 will likely be deepened to the Madison lime.

In the southern foothills, west of High River, Imperial Oil, Ltd.'s Highwood No. 1, LSD 3, Section 36-18-3w5, cable tool test, has resumed drilling at 3,620 feet.

Moose Mountain

In the Moose Mountain district, about 20 miles west of Calgary, Signal Hill Oil Co.'s No. 2, cable tool test, LSD 9, Section 34-23-5w5, has managed to keep on drilling in spite of exceedingly difficult weather conditions. The test is down 1,677 feet. Recently a lot of trouble was experienced with caving formations, but the 10-inch casing is being set in a hard stratum at around 1,600 feet. The formations are exceedingly steep, making underreaming difficult. The weather has been around 35 below zero. Traces of oil have been frequently met in the recent drilling and an oil sand is looked for around 1,800 feet.

South of Calgary, in the Aldersyde district, Ranchmens Gas & Oil Co., LSD 16, Section 13 20-29w4, drilling on the Gordon Camp' ll Dome, is reported to have got a fair show of oil at 2,850 feet.

Border Areas

In the border areas, drilling operations have apparently been more affected by weather than in the Turner Valley Field. In the Pincher Creek district, Mount Royal Oil & Gas Co.'s No. 1, LSD 4, Section 7-6-1w5, is shut down at approximately 1,000 feet, but will resume as soon as the weather moderates. The Lilly interests of Montana are interested in this test. When the well was shut in a gas pressure of 220 pounds developed; the flow was estimated around 500,000 feet a day and apparently a wet gas. Drilling is on a structure similar in origin to the Turner Valley, but with the potential oil horizons much less deeply buried, and commercial production is regarded as possible around 1,500 feet.

In the adjacent Hillspring-Waterton Lakes area, the Alberta Gas & Fuel Co., a Henry L. Doherty subsidiary, has finished the derrick and is rigging up. The location is about 35 miles northwest of Hillspring, and the boilers are being moved to location on sleighs. An eight-room residence has been furnished for the drillers. This location is not far from the scene of the first Alberta oil strike, which took place about 1903 at Oil City, near the present Waterton Lakes Park. It is reported that the Doherty interests will start a second test in the spring.

In the Cypress Hills district, in the eastern section of the border area, Eagle Butte Oil Co.'s No. 1, LSD 3, Section 31-7-4w4, is reported drilling below 700 feet. The location is isolated and little information is available from this test.

Skiff Field

In the Skiff Field, Devenish Petroleum's No. 1, LSD 5, Section 27-5-14w4, is reported waiting for installation of the pumping equipment. The railroad some weeks ago landed the pumping outfit at Skiff, and since then the crew has been bucking almost impassable roads moving the pump and equipment from the siding to the well, 7 miles distant. Part of the equipment has now been installed.

In the Warner district, Gas Production & Transportation's No. 1 in Section 18-4-18w4, is reported down 2,170 and drilling in a dark sandy shale, and is thought to be close to a potential oil horizon. The structure here is considered, like that at Skiff, to be related to the Sweetgrass Hills structure which crosses the Alberta-Montana boundary.

Irma-Wainwright

In the Irma-Wainwright Field, east central Alberta, drilling operations are reported at a standstill. The first dividend from this area is reported to have been paid recently by Petroleum Royalties, Ltd., of Edmonton, headed by H. G. Morris and N. C. Legge. This company holds 14,131 acres in the Wainwright area, and the revenue was derived from the natural gas production of the Maple Leaf Oil Co., which delivers gas to the Wainwright Gas Co. from its No. 1 well in Section 19-45-8w4. Petroleum Royalties, Ltd., receives 2 cents per 1,000 feet on the production.

In the Fabyan section of the Wainwright Field, Fabyan Petroleums, Ltd., LSD 8, Section 24-45-8w4, shut down at 1,100 feet, will be finished in the spring. The company will drill its No. 2 well near Saskatoon, Saskatchewan, where it has secured 2,000 acres.

In Saskatchewan, in the Riverhurst district, the Riverhurst Oil & Gas Co., LSD 4, Section 33-22-7w3, is reported to have a commercial production of gas in two shallow tests. No. 1 well, put down in 1926 with a water well outfit to test the structure, got an unexpected show of gas at 510 feet. No. 2 test was then started and carried an 8-inch hole to 528 feet and finished in November of last year with an estimated production of 500,000 feet a day. Some trouble has been experienced with water, but efforts are being made to shut this off, and utilize the shallow gas production commercially. It is not likely that deeper drilling will be undertaken, but the shallow sand will be further developed and the gas marketed to Riverhurst.

LA.-ARK. WILDCATS

(Continued from Page 44)

Gas Co., which took over the Amory Petroleum Co.'s No. 1 Dill in Section 12-13-18, Monroe County, Louisiana, a mile due west of the Carter gas well, successfully picked up the lost string of tools at a depth of 2,244 feet as a New Year's day bit of good luck.

Under an arrangement with the original company, the gas group a week ago prepared to eliminate an otherwise baffling fishing job and moved in some expert drillers. After drilling by the tools, they were able to pick them up on New Year's Day. The caving hole which contributed to the fishing job has been plastered with mud and as soon as all debris is removed, the drillers are going on with 6-inch set at 2,154 feet.

According to reliable information furnished by a major company representative who has followed the log and cuttings, this well is but 45 feet from the horizon which is producing the gas in the discovery well. The discovery well starts at 511.4 feet above sea level, while No. 1 Dill has an elevation of 374.6 feet. The correct depth of the Carter gasser is 2,412 feet and not 2,470 feet as previously given out. Checking slightly lower, the Dill well is more than likely to be at the interesting point in the next 45 feet.

Rotary tools for the No. 1 Hall of the Amory Petroleum Co., a mile east of the Carter gasser, are about rigged up and things are rapidly shaping to proceed with similar fishing for three joints of 6-inch dropped weeks ago at about the same depth as in No. 1 Dill.

Lee County Petroleum Co.'s No. 1 Hickman, Section 12-8-6, Lee County, 3½ miles northeast of Saltillo, has resumed operations and is now at 917 feet using roller bits and reaming with fishtail.

The Evans-Seagraves & Moody test, No. 1 Whitesides, Section 16-9-7, Lee County, 9 miles northeast of Tupelo, is now at 2,240 feet and is ready to set 6-inch casing at around 2,280 feet.

The Texas Company-Arkansas Fuel Oil well on the Day property, in Section 18-16-18, Monroe County, 14 miles south of Aberdeen, is drilling at 1,700 feet. Eight-inch casing will be set as soon as a check with the Natural Gas & Fuel Corp.'s log of No. 1 Rye, Section 22-15-17, reveals that all water has been passed.

Resetting the packer a second time in the Rye well, the second producing gasser of the district which the Natural Gas & Fuel Co. recently shot with 40 quarts, the top water was effectively shut off and the gas is now dry. The well is making right at 4,000,000 feet with the same rock pressure of about 980 pounds.

L. B. Mawk, president of the Mawk Oil & Gas Co., drilling the No. 1 Seavey, Section 22-13-7, 7 miles north of Aberdeen, is moving in rotary tools on his location to rig up combination.

The Lauderdale Oil & Gas Co.'s No. 1 Gunn, Section 13-7-6, Lauderdale County, known as the Topton well, 12 miles northeast of Meridian, is down 2,817 feet and has several excellent showings, it is reliably reported. The formations have furnished encouragement, and according to a major company geologist who is watching developments closely, the Topton well has one of the best opportunities for production in the state.

Eight Wildcat Completions

The eight wildcat completions opening the new year's record in this territory were: Chal Daniel's No. 1 Frost Johnson, Section 1-11-16, De Soto Parish, rig moved and abandoned; drilled to 100 feet and shut down August 10.

A. T. Grayson's No. 1 J. W. Reynolds, Section 21-14-17, Ouachita County, Arkansas, abandoned with casing in the hole at 1,756 feet after bailing dry on a show of oil and gas.

J. G. Reynolds' No. 1 Chandler estate, Section 3-14-18, Ouachita County, abandoned at 1,900 feet after salt water test in 4 feet of sand at 1,829-33 feet, April 13, 1927.

Bondurant and others' No. 1 Garner, Section 8-18-12, Union County, Arkansas, shut down December 20, 1926, at 2,635 feet, dry and abandoned.

Booth and others' No. 1 Rowland, Section 8-17-11, Union County, abandoned at 104 feet below contract depth of 3,000 feet after two salt water tests at 2,966 feet and at 2,937-41 feet.

H. L. Hunt's No. 1 Dykes, Section 21-18-12, Union County, temporarily abandoned since December 2, 1926, abandoned at 2,970 feet. At around 2,675 feet this wildcat in the far southeastern portion of Union County cored several feet of sand that yielded an extremely heavy oil, about 11 gravity, with about 2,500 bbls. of salt water and created a small flurry for the time being.

Kingsland Oil Co., abandoned No. 1 R. Hall, Section 31-10-10, Cleveland County, Arkansas, which had been shut down at 1,070 feet since August, 1926.

Kensaw Syndicate abandoned No. 1 Kensaw, Section 31-19-24, Lafayette County, Arkansas, as a dry hole at 3,310 feet. Contract depth was 3,100 feet, but after failing to get a showing of any sort in the Blossom sand at 2,779 feet it was decided to go deeper after contract depth had been reached in search of Woodbine production, but in this also the wildcat was a failure.

NORTH LOUISIANA

Bienville Parish

Louisiana Petroleum Co.'s No. 1 Hays, in Section 18-16-5, is the only active operation in Bienville at present. It is drilling broken chalk formations at 2,774 feet. Lake Bisteneau Oil & Gas Co. is waiting for cement to set after setting 6-inch casing at 2,519 feet in No. 1 State, Section 16-16-10, to test 3 feet of sand at 2,528-31 feet, and Edwin J. Forrest's No. 1 Perritt in Section 11-17-6, is shut down at 2,600 feet.

Bossier Parish

Doern and others' No. 1 Bollinger, Section 9-22-11, topped the red beds at 3,365 feet and is drilling at 3,400 feet. Hamiter and others' No. 1 Hamiter, in Section 10-23-13, is drilling at 1,430 feet. Walker and others' No. 1 Antrim, in Section 28-22-13, is drilling at 2,800 feet.

Caddo Parish

Arkansas Natural Gas Co.'s No. 1 Alexander, in Section 20-16-15, is drilling at 1,840 feet with surface string set at 202 feet. Belchic & Laskey are shut down at 600 feet on their No. 1 Boynton & Croom in Section 11-18-16 and have made location for No. 1 B. L. Croom, 1,320 feet north and 660 feet west SE cor. Section 10-18-16. Greenwood Production Co.'s No. 1 Cooper & Ellerbe, in Section 15-18-14, is coring shale and sand at 2,572 feet. Woodley Petroleum Co. has cemented 6-inch casing at 1,911 feet in No. 5-B Knight, Section 39-15-12, and Woodley & Collins got a small show of gas on drill stem test of 16 feet of broken sand at 2,554-70 feet in No. 1 McVey, Section 23-19-14.

Catahoula Parish

Standard Oil Co.'s No. 1 Tensas Delta, Section 23-8-5, is drilling gumbo at 2,617 feet. Lochnager Oil & Gas Co.'s abandonment of its two wells in Cathoula last week leaves the Standard's the only well in that parish.

Claiborne Parish

El Dorado Chief Oil Co. is rigging up No. 1 Jones, in Section 8-20-6, which has had derrick up since December 1. Magnolia Petroleum Co.'s No. 1 Lee, Section 16-22-8, is coring anhydrites at 4,877 feet.

DeSoto Parish

Benson Oil Co. has rig up to drill No. 2 Wolff, Section 3-10-13. Dixie Oil Co. is drilling a limey shale at 5,927 feet in No. 1 Jenkins, Section 9-12-11. Foster and others' No. 1 Johnson, Section 7-10-13, is shut down at 2,050 feet.

Natchitoches Parish

Lawson & Pharis have derrick up for No. 1 Crowell, 230 feet south and west NE cor. Section 22-5-6, which, it is understood, is to be a deep test following a series of shallow holes drilled for structure study.

Sabine Parish

S. P. Borden and others are arranging to make a test in a sand found at 3,304 feet in No. 1 Logan, Section 36-10-12. Dixie Oil Co.'s No. 1 Steinfelt, Section 20-10-12, is drilling shale at 2,730 feet. L. M. Emlet's No. 7 Bowman-Hicks, in Section 14-7-14, is in shale at 3,668 feet. Seip and others' No. 1 Moore, Section 33-10-12, is drilling at 2,750 feet.

West Carroll Parish

Palmer Corp.'s No. 1 White, Section 2-19-10, is drilling lime at 2,679 feet.

Winn Parish

Ohio Oil Co.'s No. 2 Rolan, Account 1, in Section 5-12-1w, is drilling in lime rock at 3,465 feet. H. M. Roark has shut down No. 3 Southern Minerals Co., in Section 19-11-3w, at 650 feet.

ARKANSAS

Bradley County

Johnson & Adams' No. 1 Southern Lumber Co., in Section 12-12-12, is shut down waiting orders at 2,204 feet after testing dry with no show of oil or gas.

Clark County

McKenzie Oil Co. is shut down waiting for casing to set at 660 feet in No. 1 Eakin, Section 9-11-14.

Columbia County

Sunny Jim Oil Co. is drilling shale at 2,754 feet in No. 1-A Runyon, Section 3-16-21.

Miller County

Guest and others' No. 1 Saunderson, Section 14-15-26, is drilling lime at 2,150 feet.

Nevada County

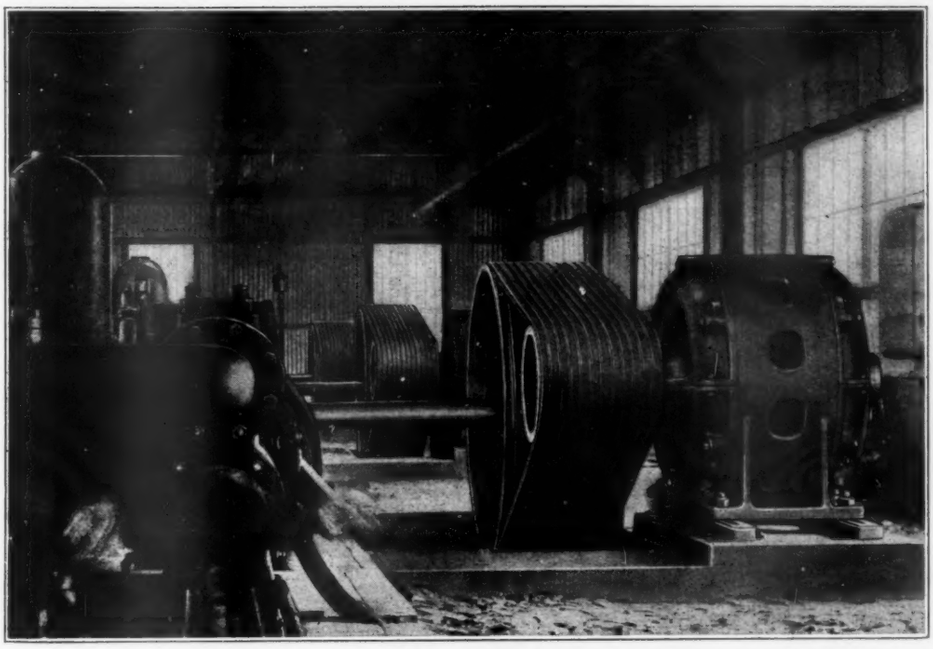
McDonald and others, drilling No. 1 Pelt, Section 9-15-22, are in lime and shale at 2,369 feet.

Ouachita County

H. M. Harrell, trustee, has cemented 6⅝-inch casing at 1,595 feet in No. 1 Ponder, Section 18-12-17, total depth 1,614 feet.

Union County

W. R. Keever's No. 5 Ezell, Section 12-17-15, has 6⅝-inch casing cemented at 2,166 feet. Lion Oil Refining Co. is coring No. 1 Horn, Section 17-17-13, at 3,065 feet. Pitcher and others tested dry with drill stem testing tool at 1,766-95 feet in No. 1 Arkansas Timber Co., Section 21-17-11. Pitcher & White's No. 1 Kinard, Section 17-15-19, is drilling at 2,411 feet. L. M. Vaughan, trustee, has rig up to drill No. 2 Ezell, 200 feet north and 250 feet east SW cor. NE NE Section 12-17-15.



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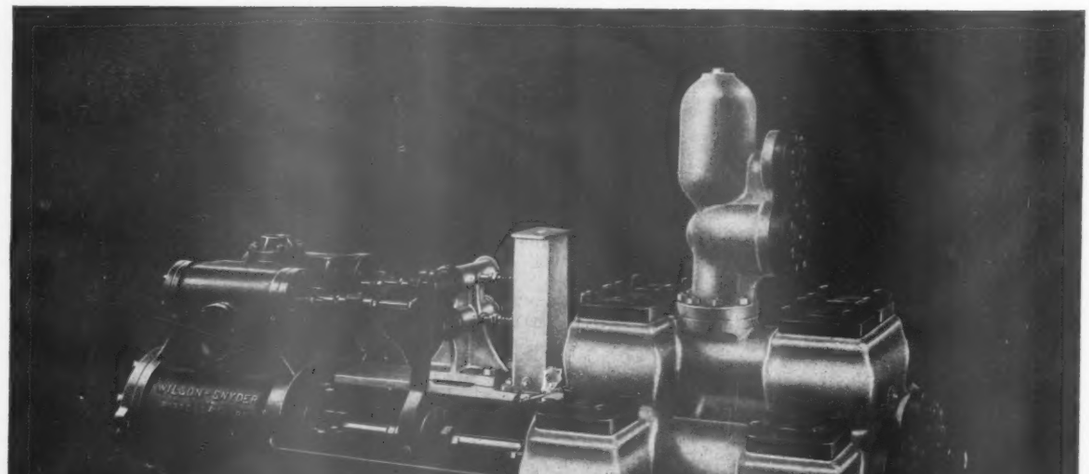

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LOUISIANA-ARKANSAS

(Continued from Page 44)

mins, Joel Lipscomb Survey, making an estimated 3,000,000 feet at 985 feet.

In Panola County, Bethany Oil & Gas Co.'s No. 4 Burns, W. A. Birdson Survey, made an initial 4,000,000 feet of gas, total depth 1,015 feet. Magnolia Petroleum Co.'s No. 1 Jernigan & Estes, Benson Lovell Survey, gauged 2,339,420 feet, total depth 1,075 feet; No. 2 Jehu Jarnigan made 3,000,000 feet, total depth 1,010 feet; No. 13 Carrie Steel, B. C. Jordan Survey, made 1,500,000 feet of gas, total depth 996 feet; and No. 3 J. M. Trosper, James Shadoin Survey, gauged 6,086,400 feet of gas, total depth 1,023 feet.

Production Drops 5,245 Bbls.

Notwithstanding the first appearance of pipe line run figures on the new Champagnolle Pool in Union County, production figures on the several pools in the Shreveport territory for the first week of the year show a sharp drop of 5,245 bbls. in daily average runs from the shipments during the closing week of 1927. Every pool in the territory save three contributed to the decline and in these the increase was merely a nominal upward fluctuation. A fourth pool, Stephens, did not change from its last week's run of 1,150 bbls.

Champagnolle makes its initial appearance with an average run of 470 bbls. taken by Magnolia Petroleum Co.'s 6-mile 4-inch line from Lege tank farm, 6 miles north of El Dorado. It is reported that Root Refineries, Inc., of El Dorado, which has an interest in the Keen & Woo'f feature producer will run Champagnolle crude at its El Dorado plant.

Total daily average runs for the week were 134,745 bbls., compared to 139,990 bbls. the week before. Smackover heavy dropped another notch into the 60,000's with a daily shipment of 69,000 bbls., compared to 71,170 bbls. the week before. This represents a decrease of 35,000 bbls. in daily average runs since January, 1927, when the daily average for that month was 105,346 bbls. Smackover light oil movement declined 725 bbls. to 8,480 bbls. daily. El Dorado fell off 510 bbls.; Nevada County, 205 bbls.; Lisbon, 65 bbls., and Bradley, 25 bbls. Arkansas' total daily average shipments was 90,140 bbls., compared to 93,370 bbls. the week before, a drop of 3,700 bbls.

In North Louisiana, Caddo light oil runs were off 885 bbls.; Caddo heavy, 130 bbls.; Homer, 205 bbls.; Haynesville, 340 bbls.; Elm Grove, 75 bbls.; Cotton Valley, 220 bbls., and Urania, 235 bb'ls. An increase of 60 bbls. is noted in shipments from the De Soto-Red River district, 10 bbls. in Bellevue, and 5 bbls. in Pleasant Hill. Daily average runs from field during the week were the following:

NORTH LOUISIANA	
Caddo light	11,040
Caddo heavy	3,920
Homer	4,360
Haynesville	6,410
De Soto-Red River	4,240
Elm Grove	525
Bellevue	1,060
Cotton Valley	4,590
Urania	7,620
Pleasant Hill	840
Total	44,605
ARKANSAS	
El Dorado	5,140
Smackover light	8,480
Smackover heavy	69,000
Stephens	1,150
Nevada County	2,915
Lisbon	2,615
Bradley	100
Champagnolle	470
Total	90,140
Both states	134,745

NORTH LOUISIANA

Bossier Parish

Cartersville—Arkansas Natural Gas Co.'s No. 1 Barnett, Section 17-23-12, is drilling at 2,750 feet. Northwest Louisiana Gas Co. has rig up to drill No. 1 Bain, Section 31-23-11. J. J. O'Brien's No. 1 Farrington, Section 21-23-12, is drilling at 2,820 feet. The Palmer Corp. has made location for No. 1 G. W. Roberson, its first test in this district, in C NW NE, Section 26-23-12. The Texas Company has made locations for two more Cartersville wells, No. 1 Peyton is a derrick 660 feet north and 330 feet east of SW cor., Section 30-23-12, and No. 2 Wilkerson is a location 660 feet west of the center of Section 36-23-12. Woodley & Collins also have made locations for two more wells, No. 1 Bain, 640 feet south and west NE cor. NW SW, Section 31-23-12, and No. 1 Bollinger, 640 feet north and 980 feet east of SW cor. NW SE, Section 36-23-12. Their No. 3 L. & A., in Section 15-23-12, is drilling shale at 3,157 feet.

Bellevue—Humble Oil & Refining Co.'s No. 30 Bliss & Wetherbee, Section 15-19-11, is shut down at 4,791 feet for repairs to the rig.

E'm Grove and Sligo—C. F. Davis is drilling No. 5 Simpson, Section 14-16-12, at 800 feet. H. S. Goodwin made location for No. 1 Mercer, Section 21-16-12, began drilling December 27, has 10-inch surface casing set at 100 feet and is drilling at 800 feet. J. S. McCullough has shut down No. 5 Hodges, Section 25-16-12, at 1,400 feet.

Caddo Parish

Pine Island—Dixie Oil Co. is reaming to set liner in No. 9 Clark, Section 14-21-15, total depth 3,956 feet; No. 90 Dillon in the same section, is also arranging to set liner, total depth 3,986 feet. No. 92 Dillon in Section 13-21-15, is drilling lime at 3,547 feet; No. 1 D. A. Huckaby, Section 33-22-15, is drilling chalk rock at 1,938 feet and No. 4 H. H. Huckaby, Section 11-21-15, is bailing to test, total depth 3,675 feet.

Gulf Refining Co. did not pump No. 14 Tyson, Section 14-21-15, reported last week waiting on standard rig, total depth 3,940 feet, and has resumed drilling. Magnolia Petroleum Co. is drilling lime at 3,684 feet in No. 8-A Hampton, Section 15-21-15, and at 3,484 feet in No. 22 Robertshaw, Section 23-21-15. Ohio Oil Co. is in hard lime at 5,725 feet in No. 25 E. K. Smith, Section 12-21-15. Palmer Corp.'s No. 1 Sellington, Section 17-21-15, is still fishing for 100 joints of 4½-inch casing, total depth 4,395 feet.

The Texas Company's No. 8 A. Herndon, Section 14-21-15, is in hard lime at 3,680 feet; No. 9 cemented 10-inch casing at 2,596 feet; No. 19 D. H. Raines, Section 15-21-15, is drilling hard shale at 4,342 feet.

Greenwood—Ferguson and others' No. 3 Abney, Section 7-17-16, began drilling December 30, set 60 feet of 10-inch surface casing and 940 feet of 6-inch, and is testing at 970 feet. Magnolia Petroleum Co. is coring No. 1 John Furrh, Section 32-18-16, in lime at 2,741 feet. Waterman Brick & Tile Co.'s No. 1 Waterman, Section 18-17-16, is shut down at 2,340 feet.

Mooringsport, Oil City and Vivian—Bee Oil Co.'s No. 1 Muslow, Section 29-20-15, is drilling at 1,010 feet. Standard Oil Co. has derrick up for No. 17 J. J. Hart, 694 feet west and 145 feet south NE cor. NW, Section 34-21-16, and No. 191 Stiles, Section 27-21-16, showed a little gas after bailing down 1,800 feet, total depth 1,849 feet.

DeSoto Parish

No. 2 Lanier of American Controlled Oil Co. in Section 5-11-11, is drilling at 2,720 feet.

Monroe District

Morehouse Parish—Consolidated Carbon Co.'s No. 1 Perry, Section 14-20-4, is drilling at 1,860 feet. E. C. Jordan has resumed drilling No. 1 Southern Carbon Co. in Section 14-20-4, shut down last week at 164 feet, and is down 258 feet. Moody & Seagraves have made location for their first well in the Monroe district, No. 1 Wolf, 4,351 feet west and 4,506 feet south NE cor., Section 13-20-4. The Texas Company's No. 1 Myers, Section 15-22-7, is drilling at 825 feet.

Ouachita Parish—J. M. Huber has rig up to drill No. 4 Edwards in Section 1-18-4. Imperial Oil & Gas Products Co.'s No. 4 Stubbs is a derrick 1,200 feet north and 25 feet east SW cor. SE, Section 13-19-3. Moody & Seagraves also have rig up for No. 1 U. S. Govitt, in Section 1-19-3. Palmer Corp. is drilling No. 3 West Virginia Timber Co., Section 5-18-4, at 1,775 feet.

Union Parish—John Potts' No. 1 Bernstein, Section 30-20-4, began drilling January 1 and has 12-inch surface casing

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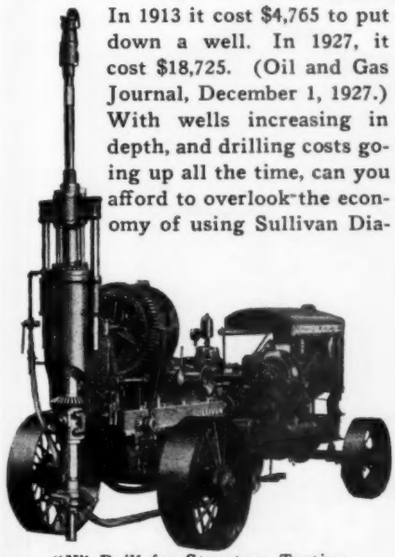

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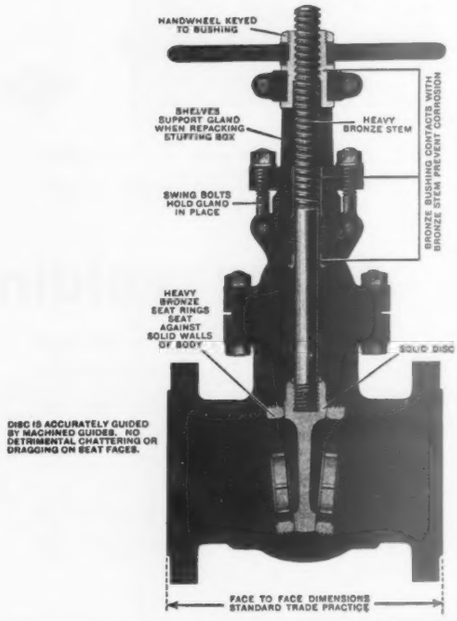
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set at 200 feet. Ruston Drilling Co. has location for No. 1 Steel, 1,580 feet south and 525 feet east NW cor., Section 36-20-3e.

Red River Parish

J. H. Askew is drilling at 2,425 feet on No. 3 Richardson, Section 25-13-11.

Richland Parish

Gulf Refining Co. is drilling shale at 2,385 feet in No. 1 Millsaps, Section 8-17-6, and has set 127 feet of 15½-inch surface casing and is drilling at 207 feet on No. 1 Chess-Wymond in Section 20-18-6.

Moody & Seagraves' No. 1 Hatch, Section 34-16-5, has set 1-inch second string at 910 feet; No. 2-B Hemler, Section 6-15-6, is drilling at 2,296 feet; No. 1-C Hemler, Section 29-16-6, is in sandy lime at 1,485 feet; No. 1 LaFleur, Section 18-16-6, began drilling January 1 and is making hole after setting 15½-inch surface casing at 130 feet. No. 1 McDonald, Section 9-15-5, began drilling January 4 and No. 1 Osborn is drilling sand at 2,458 feet with 6-inch casing cemented at 2,292 feet.

Natural Gas & Fuel Corp. set 15½-inch casing at 203 feet and is drilling No. 1 Sartor-Phillips, Section 9-16-6, at 900 feet. No. 1-A Thompson, Section 21-16-6, is drilling shale at 1,600 feet. Noe & Meredith have rig up ready to drill No. 1 Boughton, Section 4-15-6. Ruston Drilling Co. is drilling plug after setting 8-inch casing at 886 feet in No. 1 Sartor, Section 17-16-6. Southern Carbon Co.'s No. 1 Sartor, Section 20-18-8, is drilling at 2,284 feet. Stovall Drilling Co. is bailing 6-inch casing cemented at 2,383 feet in No. 1 Dunning, Section 26-16-6.

Webster Parish

Cotton Valley—Humble Oil & Refining Co. is drilling lime at 3,989 feet in No. 5 J. Babb, Section 14-21-10, and at 4,125 feet in No. 1 Gray, Section 26-21-10. Magnolia Petroleum Co. is in the same formation at 3,860 feet in No. 1 G. W., Section 27-21-10. No. 1 D. G. Cox, Section 22-21-10, is in lime at 3,452 feet and No. 1 Mixon, in the same section is shut down in gumbo at 2,727 feet. Ohio Oil Co.'s No. 38 Bodcaw, Section 15-21-10, began drilling December 29, set 12½-inch surface casing at 619 feet and is drilling at 632 feet. No. 1 Crichton, Section 21-21-10, is in shale at 1,703 feet.

Sarepta, Spring Hill and Shongaloo—Arkansas Natural Gas Co. is sidetracking bit and drill collar lost at 1,800 feet in No. 1 North Central Texas, Section 36-23-10. Magnolia Petroleum Co.'s No. 1 H. L. Munn, Section 29-23-9, is drilling gumbo at 1,715 feet and No. 1 J. L. Munn, Section 36-23-10, began drilling January 3. No. 1 Roseberry, Section 29-23-9, cemented 6⅝-inch casing at 2,706 feet.

ARKANSAS

Ouachita County

Smackover—Humble Oil & Refining Co. is setting 4½-inch casing at 2,622 feet in No. 4 Murphy, Section 3-16-15, total depth 2,630 feet. Standard Oil Co.'s No. 1-B Goodwin, Section 5-16-15, is losing returns, total depth 2,008 feet.

Stephens—Buffalo Oil Co.'s No. 3 Culp, Section 22-15-19, has shut down after drilling out 6-inch cement plug at 2,075 feet.

Union County

El Dorado—C. H. Allison is rigging up with cable tools to drill 6⅝-inch plug at 2,154 feet in No. 10 Fitzgerald, Section 17-18-15. Morefield and others have derrick pattern on location for No. 1 Hill, 330 feet south and 330 feet west NE cor. SE SE, Section 7-18-14.

Champagnolle—Eddy Jones' No. 2 Crain, Section 2-17-14, is standing 2,000 feet in fluid, 50 per cent salt water from 2 feet of sand 3,010-12 feet, and is waiting orders. No. 3 Crain bailed down 1,500 feet and then ran bailer to the bottom getting salt water from 5 feet of sand 3,071-76 feet; No. 4 cemented 6⅝-inch casing at 3,064 feet, total depth 3,067 feet. Magna Production Co. has rig up to drill No. 1 Rowland, Section 14-17-14, about 2 miles south of production. Ohio Oil Co. cemented 6⅝-inch casing at 3,026 feet in No. 6 Crain, Section 1-17-14, to test 3 feet of sand 3,028-31 feet. No. 7 cemented 6⅝-inch casing at 3,030 feet. A drill stem test of 3 feet of sand, 3,026-29 feet in No. 1 Goode, Section 2-17-14, showed gas and the crew is waiting orders. No. 2 Goode cemented 6⅝-inch casing at 3,049 feet. No. 22 Rich Pumphrey in Section 2-17-14, cemented 6⅝-inch casing at 3,007 feet and is estimated to be making 240 bbls. fluid 42 per cent b.s. and water from 4 feet of sand at 3,010-14 feet. No. 3 R. Pumphrey is drilling at 2,930 feet. Oilwell Corp. began drilling No. 1 J. Dumas, Section 11-17-14, December 31, and set 10-inch surface string at 157 feet; No. 1 Townsend in Section 10-17-14, has rig up ready to drill. Rovenger Oil Corp. has derrick pattern on location for No. 1 Perdue in the NE cor. NE SW, Section 2-17-14.

Smackover—Laurel Oil & Gas Co. is fishing for two joints of drill stem lost at 2,630 feet in No. 1 Houston, Section 12-16-16. Lion Oil Refining Co. has cemented 6⅝-inch casing at 1,964 feet in No. 1 Leverett, Section 11-16-16, total depth 1,973 feet; No. 7-D Murphy, Section 8-16-15, is drilling at 2,703 feet. C. E. Murdock perforated casing at 2,117 feet in No. 2 Murphy, Section 17-16-15, and is pumping salt water with a show of oil.

EAST TEXAS

Harrison County

J. R. Bahan has made location and has rig up to drill No. 6 Furrh in the James Short Survey. C. H. Lyons and others have derrick up for No. 2 Furrh in the same survey. Mitchell and others cemented 6-inch casing at 946 feet in No. 1 Jones in the Joel Lipscomb Survey and are shut down waiting orders. State Line Oil & Gas Co. began drilling No. 3 Z. Abney in the W. R. Anderson Survey on December 29, set 10-inch at 102 feet and 8-inch at 937 feet. No. 6 Waterman in the E. Pollock Survey has rig up for what is understood to be planned for a deep test. A. L. Waller's No. 4 J. M. Bryson in the W. R. Anderson Survey, is drilling lime at 1,800 feet after setting 105 feet of 10-inch surface casing.

Panola County

Magnolia Petroleum Co. is coring gummy shale at 2,653 feet in No. 1 Lila Fletcher in the B. C. Jordan Survey; No. 2 Sol Oden, E. F. Mitchell Survey, is drilling sandy shale and boulders at 1,893 feet. No. 1 J. M. Trosper in the James Shadoin Survey is waiting on standard rig after showing salt water with a little oil at 2,416 feet. D. Thomason's No. 2 Crenshaw in the James Womack Survey, set 6-inch casing at 2,250 feet, total depth 2,340 feet.

GULF COAST FIELDS

(Continued from Page 48)

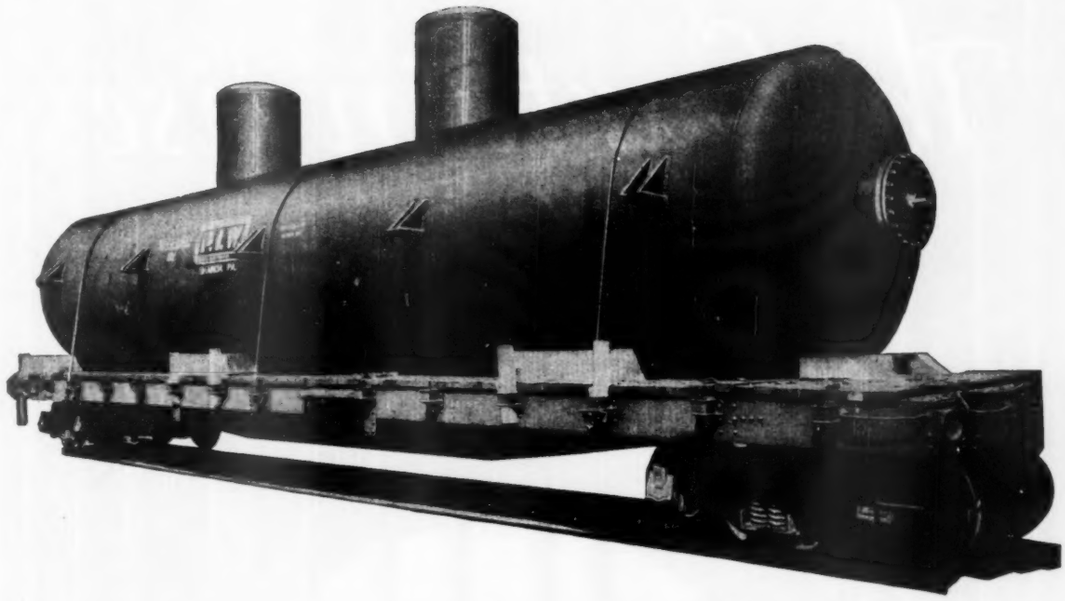
060 feet, and No. 228 Gladys at 732 feet. Magnolia Petroleum Co.'s No. 7 fee is drilling at 4,990 feet. Sun Oil Co.'s No. 1 Coit is drilling at 3,710 feet, its No. 11 Marrs McLean at 5,210 feet, and its No. 18 McLean at 4,850 feet. No. 17 McLean, recently completed is to be deepened. No. 19 McLean is drilling at 3,640 feet.

At Big Hill, also in Jefferson County, Freeport Sulphur Co. has a location for another test, its No. 7 Staiti.

Two Jefferson County wildcats have been abandoned, these being Beaumont Oil & Prospecting Co.'s No. 1 Tyrell, 3 miles northwest of Beaumont, which was drilled to 4,080 feet, and McMurry and associates' No. 1 Crosby, 5 miles northeast of Port Arthur, drilled to 4,025 feet. The latter operators, however, have a location for No. 2 Crosby.

Liberty County

The Texas Company has completed No. 2 Hannah fee, Hull Field, pumping 50 bbls., 23 per cent sediment and water, from a formation around 3,100 feet. W. F. Flynn's No. 1 Ray Hull, is drilling at 1,925 feet. Gulf Production Co.'s No. 87 Phoenix is down 5,260 feet. This company's No. 48 Phoenix, an old well being deepened, is down 3,171 feet. Gulf's No. 11 Thomas fee is drilling at 3,828 feet. Republic Production Co. is drilling at 900 feet in No. 23 Dolbear



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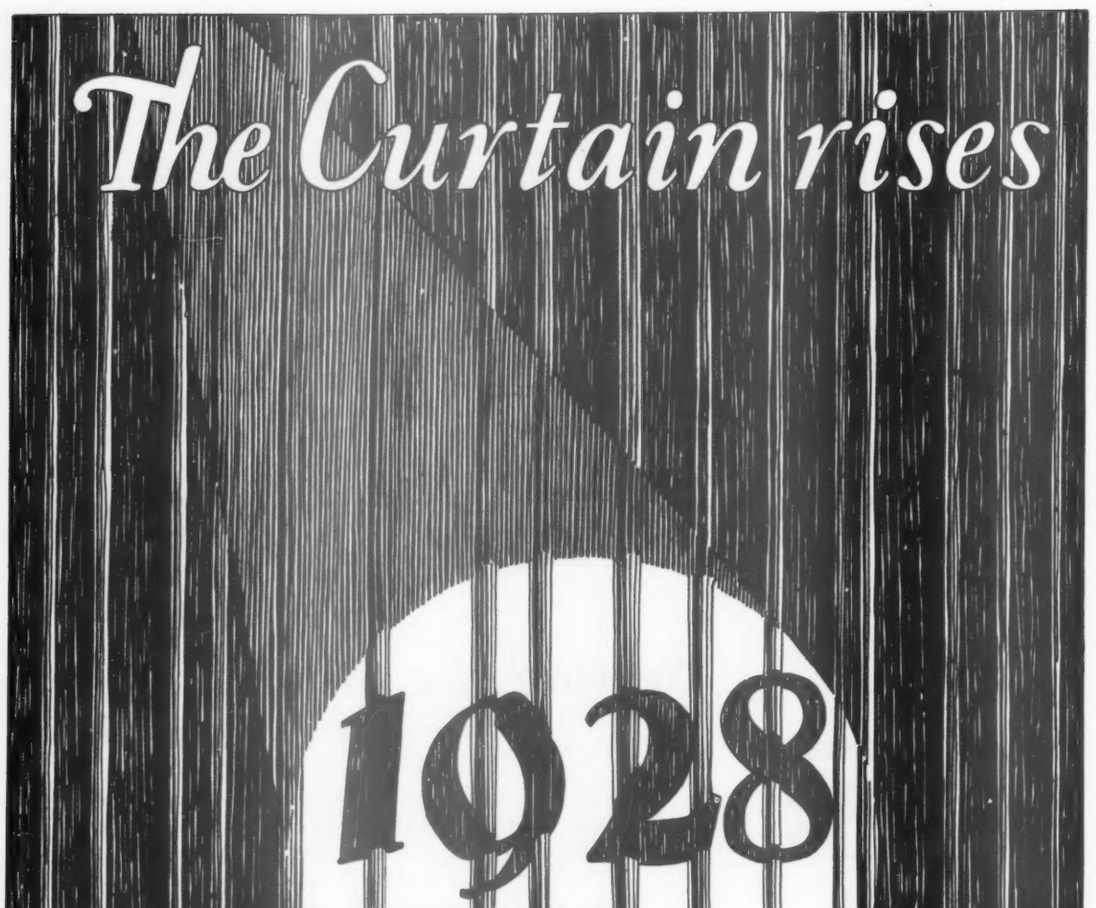

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and at 4,010 feet in No. 89 Dolbear. The Texas Company and the Vacuum Oil Co.'s No. 7 Hannah is drilling at 3,775 feet. Empire Gas & Fuel Co. is making arrangements to deepen No. 26 Barngrover.

At Liberty, The Texas Company has made location for No. 1 Green.

Miller Drilling Co.'s No. 1 Gardner, a wildcat, has been abandoned at 1,831 feet after being shut down several months. Titwell and associates' No. 1 Gardner, 5 miles east of Davis Hill, also has been abandoned.

Matagorda County

John Deering and associates have abandoned No. 1 Caney, which was drilled to 1,500 feet. Rycade Oil Corp. and Humble Oil & Refining Co.'s No. 5 Kountz at Markham has screen set at 3,872 feet and is running tubing. Total depth is 3,920 feet.

Orange County

Texhoma Oil Co.'s No. 13 Chessom has been completed pumping 150 bbls. from sand around 3,425 feet. Brownie Babbett Oil Co.'s No. 1 McLean is sidetracking at 3,190 feet. Gulf Production Co.'s No. 21 Lee Hager fee is drilling at 4,227 feet. The latter company's No. 7 Hager & Moore is drilling at 3,204 feet. Humble Oil & Refining Co.'s No. 1 Kishi-Lang is coring sandy shale at 3,084 feet. Rex Petroleum Co. is setting strainer in No. 6 Carbello to test a sand at 3,160 feet. Rycade Oil Corp.'s No. 13-E State on Cow Bayou is drilling hard sand at 4,645 feet. Sinclair Oil & Gas Co.'s No. 5 Granger is drilling at 3,550 feet. Sun Oil Co.'s No. 2 Brown is drilling at 4,990 feet.

Wharton County

Gulf Production Co. has a rig up for No. 9 Chase at Boling. Southern Exploration Co. is drilling gumbo at 2,450 feet in No. 1 Mullins.

Louisiana Gulf Coast

Acadia Parish

In the Evangeline Field, Port City Oil Co.'s No. 6 Jennings-Heywood has been completed pumping 75 bbls., 6 per cent water from sand at 1,825 feet. The Texas Company's No. 2-B Laterille also has been put on the pump making 20 bbls. The latter company's No. 2 Rayne heirs is drilling below 3,900 feet. This company also has made location for No. 4-B Latrielle.

Ascension Parish

Gulf Refining Co.'s No. 4 United Land Co., McElroy Field, has started drilling and is down 1,174 feet. This is on the Sorrento Dome.

Calcasieu Parish

At Lockport, Vacuum Oil Co. and Gulf Refining Co. have completed No. 19 Miller flowing 150 bbls. of net oil from sand at 3,237 feet. No. 3 Farquahar is whipstocking and sidetracking drill stem at 4,317 feet after failure in fishing. The hole had been drilled to 4,399 feet. No. 5 Farquahar is waiting repairs to the water line and the laying of tubing. No. 4 State on Bayou D'Inde has sanded up 180 feet after swabbing to below 4,000 feet. Total depth is 4,418 feet. No. 1-A fee is in a water sand at 4,448 feet. No. 2 Frieber & Wolf also is in a water sand at 6,016-22 feet.

At Edgerly, C. M. Crotty's No. 7 Lillard is pumping 7 bbls. from sand at 2,400 feet. Edgerly Petroleum Co.'s No. 11 Vincent is being bailed for a test at 3,475 feet. Green Oil Co.'s No. 9 Moore is drilling at 2,750 feet. Wilson-Broach's No. 6 Wilson is drilling at 2,990 feet.

Gulf Refining Co.'s No. 9 Industrial at Starks Dome is drilling at 3,903 feet. A rig is up for No. 8 Lutcher-Moore.

Marrs McLean is making arrangements to deepen his No. 1 G. & N. G. at Vinton. Vinton Petroleum Co.'s No. 9 Gordon is sidetracking at 2,775 feet.

Choupique Oil Co.'s No. 1 Benenstein has been shut down again after starting to sidetrack at 3,300 feet. Newton Drilling Co.'s No. 1 Dupre between Lake Charles and the Lockport Field is drilling sand and shale at 2,800 feet.

Cameron Parish

Calcasieu Oil Co.'s No. 1 Olevia at East Hackberry is drilling at 3,952 feet and is drilling carefully ahead to the sand at 3,995 feet in which this company's No. 2 Caldwell was completed two months ago as a 1,000-bbl. producer. This company's No. 1 Watkins is down 900 feet where 12½-inch casing is being run. A derrick also is up for No. 1 Borron but the test will not be rigged up until the rig of No. 1 Olevia is available. In the same district, C. O. Noble and associates are drilling at 2,340 feet in No. 1 Ellender. Yount Lee Oil Co.'s No. 6 State at last reports was standing after rigging up. This company's No. 7 School land in the Old Hackberry district is drilling rock below 3,100 feet.

Miscellaneous

Tom Hincy and associates' No. 1 Ducide Guillery, at Pine Prairie Dome, Evangeline Parish, is drilling around 2,400 feet. Gulf Refining Co.'s No. 1 Broussard at Loreauville, Iberia Parish, is drilling at 4,756 feet and its No. 3-Z State at 1,179 feet. At White Castle, Iberia Parish, Roxana Petroluem Corp.'s No. 1 Wilbert is reaming after failure to get the 9⅞-inch casing down. This test is down 1,578 feet. Southern Gas Co. has abandoned No. 3 Southdown, Terrebonne Parish.

KANSAS FIELDS

(Continued from Page 42)

for 100 bbls. in sand 1,685-1,722 feet. No. 6 Demler, NW cor. NE NE, Section 25-22-12, was shot with 20 quarts and made 300 bbls. from sand 1,688-1,743 feet. Blankenship Petroleum Co.'s No. 1 Perrie, NW cor., Section 30-22-13, made 35 bbls. from sand 1,700-26 feet. Paul and others' No. 1 Hull, SE cor. SW NW, Section 3-26-10, is dry and abandoned at 2,100 feet.

McPherson County

Merriman and others' No. 1 Clark, C NE NW, Section 8-19-2w, is dry and abandoned at 3,560 feet.

Morris County

Cress & Hawks made location for No. 1 Walter, NE cor. SE, Section 16-15-5.

Sumner County

Roxana Petroleum Corp. is building the rig for No. 9 Riverbed, SE cor. NE NW, Section 36-31-2. The rig is up for No. 1 Work, SW cor. SE, Section 11-32-2. No. 2 Rothwell, SW cor. NE SW, Section 14-32-2, is spudding. Wasson and others' rig is under construction for No. 4 Gassoway, SW cor. SE SW, Section 14-32-2. Palmer & Barnsdall Oil Co.'s rig is being built for No. 2 Wenrich, NW cor. NE NE NW, Section 23-32-2. Roxana Petroleum Corp. has the rig up for No. 1 Miller, NW cor. NE, Section 23-32-2. Meridian Gas Co. moved a machine to the location for No. 1 Bowers, SW cor., Section 8-35-1.

Roxana Petroleum Corp.'s No. 9 Community, Lot 7, Block 36, Oxford Townsite, Section 11-32-2, is a 75-bbl. well in sand 2,048-2,117 feet. Derby Oil Co.'s No. 2 Spence, Tract 3, Oxford Townsite, Section 14-32-2, made 192 bbls. from sand 1,990-2,094 feet. Roxana Petroleum Corp.'s No. 7 Emerich, Oxford Townsite, Section 14-32-2, was shot with 140 quarts and made 1,809 bbls. from sand 1,991-2,096 feet. No. 8 Community, Lot 9, Block 54, Oxford Townsite, Section 14-32-2, had sand 2,014-2,106 feet and after plugging back to 2,101 feet made 200 bbls. after the shot. Wasson and others' No. 1 Gassoway, NE cor. SE SW, Section 14-32-2, was completed for 2,245 bbls. from sand 1,950-2,076 feet.

OKLAHOMA FIELDS

(Continued from Page 42)

000 feet of gas in sand 837-45 feet. Globe Oil & Refining Co.'s No. 1 Harris, an old well in the SE cor., Section 8-27-1w, was deepened from 3,492 feet to 3,513 feet and abandoned after losing the tools.

Logan County

Olean Petroleum Co. has moved rig material to the location for No. 1 Sheppard, SE cor. SW, Section 7-19-4w, near Marshall. Davis & Browning made location for No. 1 Woods, NE cor. SE, Section 6-18-4w, near Lovell.

Osage County

The Texas Company has the cellar dug for No. 1, SW cor. NW, Section 27-27-6, Burbank Pool. Gypsy Oil Co.'s No. 4, SE cor. NE NW, Section 28-27-6, Burbank Pool, is spudding No. 5 NW cor. NE NW, Section 28-27-6, is rigging. Devonian Oil Co. has a machine at the location for No. 4, NW cor. NE NE, Section 33-21-10. Delmar Oil Co. has moved the rig material out for No. 1, C NE, Section 4-23-10. Beacon Oil Co. made location for No. 1, NW cor. SW SE, Section 3-21-11.

T. K. Smith's No. 2, SE cor. NE, Section 5-22-12, was deepened to the Turkey Mountain sand 2,263-68 feet and plugged back to the Burgess sand 1,901 feet and completed for 5 bbls. Kewanee Oil & Gas Co.'s No. 7, SW cor. NW SE, Section 34-27-6, Burbank Pool, made 320 bbls. in 15 hours from Burbank sand 2,752-2,832 feet. C. B. Peters' No. 1, NE cor. SE, Section 7-27-9, is dry and abandoned at 2,655 feet. Kewanee Oil & Gas Co.'s No. 8, SE cor. NW NE, Section 3-26-6, flowed 400 bbls. from the Burbank sand 2,745-2,815 feet. Sam Sitrin's No. 14, NE cor. SE SW, Section 27-25-9, has been abandoned at 2,177 feet. Galt Brown Oil Co.'s No. 1, NW cor. NE, Section 7-24-8, was completed for 5 bbls. at 2,574 feet in the Burgess sand. Oklahoma Natural Gas Corp.'s No. 776, SE cor. NW NE, Section 33-21-12, came in for 250,000 feet of gas in the Bartlesville sand 1,590-97 feet.

Pawnee County

Black and others' No. 4 Cotton, CWL SW NE, Section 6-20-8, drilled to 275 feet and is shut down. Producers Consolidated Oil Co.'s No. 12 George, NW cor. NE SW, Section 6-20-8, is shut down at 225 feet.

Payne County

Transcontinental Oil Co. made location for No. 1 Powers, NW cor. SW NW, Section 10-18-5.

Lincoln County

Shaffer Oil & Refining Co.'s No. 2 Skinner, SW cor. SE, Section 31-17-5, had sand 4,234-42 feet and produced 1,214 bbls. initial.

Pontotoc County

Shaffer Oil & Refining Co.'s No. 4 Yoakum, SW cor. NW NW, Section 16-5-8, Allen Pool, made 100 bbls. from broken sand 2,655-83 feet and sand 2,687-90 feet. W. R. Ramsey's No. 4 Webb, NW cor. SW, Section 20-5-8, was completed for 10,000,000 feet of gas and 768 bbls. in sand 2,441-2,535 feet. Louisiana Oil Refining Co.'s No. 5 Warfle, SW cor. NE, Section 20-5-8, had broken sand 2,450-2,563 feet and made 600 bbls.

Stephens County

Magnolia Petroleum Co.'s No. 3 Shaffer-Young, SW cor. SE SW, 29-1-8w, is rigging up to deepen from 2,254 feet.

Texas County

Texas County Gas Co. made location for No. 1 Barbee Ranch, C NE NE, Section 17-3-15e.

Tulsa County

The Texas Company's No. 1 Strip, SW cor. NW SE, Section 10-19-10, is drilling at 2,200 feet. E. D. Davis and others' No. 3 Perry, CEL SE NW, Section 21-19-12, is dry and abandoned at 1,997 feet. S. F. Mallory and others' No. 1 McIntosh, NW cor. SE NW, Section 28-19-14, lost the hole at 1,050 feet and has been abandoned.

Okfuskee County

E. L. Robinson and others' No. 13 Barnett, C SE SW, Section 24-11-11, is dry and abandoned at 3,530 feet. The Prairie Oil & Gas Co.'s No. 1 Gray, SW cor., Section 19-11-7, is drilling at 42 feet.

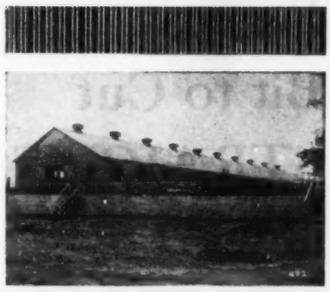
Hughes County

McCulloch Oil Co.'s No. 1 Bruner, SE cor. NW, Section 16-9-9, is dry and abandoned at 4,205 feet.

Okmulgee County

Laurel Oil & Gas Co. has a machine on the location for No. 1 Brown, NW cor. NE, Section 22-16-12. W. F. Epler's No. 1 Graham, SW cor. NE NE, Section 22-15-11, was completed for 25 bbls. in the Taneha sand 2,111-35 feet. A. C. Saint and others' No. 1-A Warren, NE cor. SW NW, Section 12-14-12, is a 20-bbl. well in sand 2,106-08 feet. Kirkland & Son's No. 3 Jimmy, CEL SE, Section 8-15-13, is dry and abandoned in sand 2,504-60 feet. T. H. McBrayer and

(Continued on Page 137)



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Eastern Markets in Hesitant Mood

Course of Prices Unchanged With Outlook Mixed. Increased Business and Increased Competition Looked For

By N. O. Fanning

New York Bureau, The Oil and Gas Journal, Room 629, No. 101 Park Avenue, New York, N. Y.

NEW YORK, Jan. 7.—The first week of the new year finds the petroleum markets in this section in a rather hesitant mood. The course of prices is unchanged from the close of 1926, with no particular trend clearly defined. Sentiment leans a little bit in the direction of pessimism. The export outlook on the Atlantic Seaboard is rather mixed, with prospects good in some directions and poor in others.

It is safe to point out, however, that the oil trade in this section is not much given to predictions at the present time. There is evidence of much activity in some lines indicating a faith in the future, but hopes for an increase in prices seem remote.

Reports from all sections of the East regarding the 1928 industrial outlook are bright. Any tendency on the part of the oil industry here to feel elated over this prospect is tempered by the crude oil situation. To put the situation in a few words, the trade looks for increased business, but also for increased competition.

Gasoline Market

Practically all business in tank car gasoline at Atlantic Seaboard refineries is being done at 8¼ cents for United States motor, unchanged the past two weeks. Reports that business has been done up to 8½ cents cannot be confirmed, and are not generally credited, inasmuch as there seems to have been plenty of material available at 8¼. Additional arrivals of Mid-Continent gasoline in tank cars, said to have been delivered at the equivalent of 8¼ cents f.o.b. Atlantic Coast refinery, fix that price as the most representative of the present market. Local marketers look for increased shipments of Mid-Continent gasoline to the East during the next two weeks as a result of new contracts said to have been closed recently. However, these may slow down considerably by spring as the Middle West demand is expected to absorb much more of the Mid-Continent production than at present.

The gasoline tank wagon market is fairly steady in the North Atlantic States. There are a number of service stations selling below the general market of 19-20 cents a gallon, retail, but this has been true for some months, and the situation does not seem any more aggravated now. It seems that the stations quoting the higher prices are maintaining their share of the business, in most instances, in the face of this price cutting.

In the South, the Standard Oil Co. of Kentucky opened the year on January 3 by reducing the price of gasoline in tank wagons 3 cents at Macon, Ga., and Montgomery, Ala. It also reduced the tank wagon price of kerosene 1 cent to 14½ cents at Birmingham and a similar cut was made at Mobile, Ala., to 14 cents, at Montgomery to 15½ cents, Clarksdale, Miss., to 11½ cents, Miami, Fla., 14½ cents, and Pensacola, and Tampa, to 13 cents. These reductions, made on the eve of the biggest seasonal automobile traffic in the South, give full indication of the sharp competition now prevalent in this territory.

Whether the North and Central Atlantic tank wagon markets will succumb finally to the service station price cutting which has been prevalent so long is a question. It is felt that if the markets can be maintained at current levels through February there is a good chance of definite improvement, as the period of minimum consumption will be about over.

The kerosene market in this territory has continued firm and without any new developments of importance. Water white is still 7½ cents at Atlantic Coast refineries, f.o.b. tank cars. Consumption has been much improved as a result of the cold wave which is now a week old, but the ample supply of kerosene available as a result of tank car and tanker shipments to the Atlantic Coast have kept prices from advancing.

The tank wagon kerosene market has remained steady except for the reductions noted above in parts of the South. Those reductions cannot be accepted as a criterion of the situation in the North Atlantic States, however, where cold weather and the export outlet are combining to hold up the market.

The two months of coldest weather and consequent largest demand for both kerosene and furnace oil, January and February, should continue to act as a stabilizer, in the opinion of marketers. Some are inclined to look for higher prices during this period. It is pointed out, however, that users of furnace oil usually buy in advance, and, due to a warm December, are still fairly well stocked for the cold weather period.

Gas and Fuel Oil

Continued steadiness in gas oil is due to a good demand from the gas manufacturers and a reluctance on the part of refiners to sell the lighter material which may be used as cracking stock. Gas oil is still available in tank car lots at 5½ cents f.o.b. refinery, at Bayonne. The trend, however, is distinctly upward, in the opinion of some close to the market.

Contracts for gas oil placed by artificial gas manufacturers in the East for 1928 are expected to be largely in excess of those for 1927 as a result of the steadily expanding volume of gas being sold. Many of these contracts come about May or June, that being the busiest period of the year.

The Diesel oil market is firm, with the marine trade paying $2.10 a barrel at eastern ports, the same price that has been prevailing now for several months. That there will be any great change in this level is unlikely barring unforeseen events. The domestic demand for Diesel oil, while still a comparatively small factor, is gaining steadily.

Bunker fuel oil is unchanged at $1.35 a barrel at New York and Baltimore and $1.30 at Charleston. Demand is off somewhat, but the market seems steadier in spite of this than it was a week or two ago. The report that the Tide Water Oil Co. had contracted to buy 1,100,000 bbls. of Venezuela crude oil for its Bayonne plant at a price of 90 cents a barrel delivered to tankers outside Lake Maracaibo is in line with the growing importance of South American oils in the Atlantic Coast fuel oil market. The transportation rate from Venezuela, incidentally, has dropped to a new low point of 17½ cents. On the basis of the above contract, if the terms as reported are correct, the crude can be delivered to Bayonne for $1.07½ cents. In the opinion of some, a number of contracts of this kind would probably result in a lower bunker oil market here, but it is not certain there is sufficient new oil available in Venezuela to have that effect.

Lubricating Oil

The new year finds the lubricating oil unchanged and exhibiting a steady, even tone. Demand for motor oils and industrial lubricants is increasing, the latter to an encouraging extent. Marketers of spindle oils are finding encouragement in the reopening of a number of cotton mills in New England. In many other industrial lines, operations have been increasing since the first of the year.

The motor trade in lubricating oils is good, with fair, cold weather. This is being reflected in a better demand for bright stocks.

Competitive conditions in the lubricating oil market appear to be somewhat improved. Less distress material is on the market now than at any time since last fall. However, stocks on hand at Atlantic Coast refineries are ample and as a result no pinch can be expected. These plants now have on hand more than 2,500,000 bbls. of lubricants, or about 33 per cent of the total supply of the country.

Paraffin Wax

The paraffin wax market has been dull since January 1, but more activity is expected when consumers have appraised their requirements for the coming months. It is expected that the industrial demand for refined wax will be good, as hand-to-mouth buying has resulted in reducing stocks in consumers' hands to low levels. In addition, refiners have placed themselves in a better position than for some time and to all appearances the market is well in hand.

The year starts with wax prices at low levels and it is only natural that with any improvement in business quotations should move somewhat higher, as in the opinion of the trade present levels are out of line with economic conditions due to excessive competition.

Petrolatum

The new year finds no change in the petrolatum market. The strength carried over from 1927 is still in evidence, and prices are being well maintained. Chief demand still centers on extra amber, cream, lily white and snow white. Dark green is available at 1⅞ cents a pound, but little is doing in this grade.

Export Market

The oil export movement during the past week has been narrow due largely to the usual holiday lull. Nevertheless, inquiries since January 3 have indicated material interest in the market on the part of European buyers, and some good bulk orders are in the making.

During the week ended January 4, more than 3,300,000 gallons of lubricating oil were shipped to Europe in bulk. In addition there were exports of 572,150 gallons in barrels and 142,250 gallons in cases.

All other divisions of the export movement were quiet with the exception of petroleum asphalt. Heavy shipments to Australia resulted in bringing the total for the week up to 3,418 tons.

Reports from Europe indicate an extreme nervousness over the gasoline situation, some of which, at least, appears unjustified. A dispatch from London, characteristics of the feeling now rampant, is as follows: "There are rumors of a gasoline war in England. It is reported that the Anglo-American Oil Co.'s representatives are preparing a campaign here for a motor fuel known as ethyl. The introduction of this fuel, it is believed, will break the price ring upheld by Shell, Pratts and British Petroleum. In addition, it is widely rumored that widespread arrangements are also proceeding for the distribution of Russian gasoline by Russian interests."

Reports of this kind are illustrative of the feeling, although the above dispatch shows in itself how ill-founded much of it is. For instance, ethyl gasoline is a special fuel selling at a premium, and could have nothing to do with reducing gasoline prices. In addition, the amount of ethyl gasoline available will increase gradually, and will not, according to those

(Continued on Page 127)

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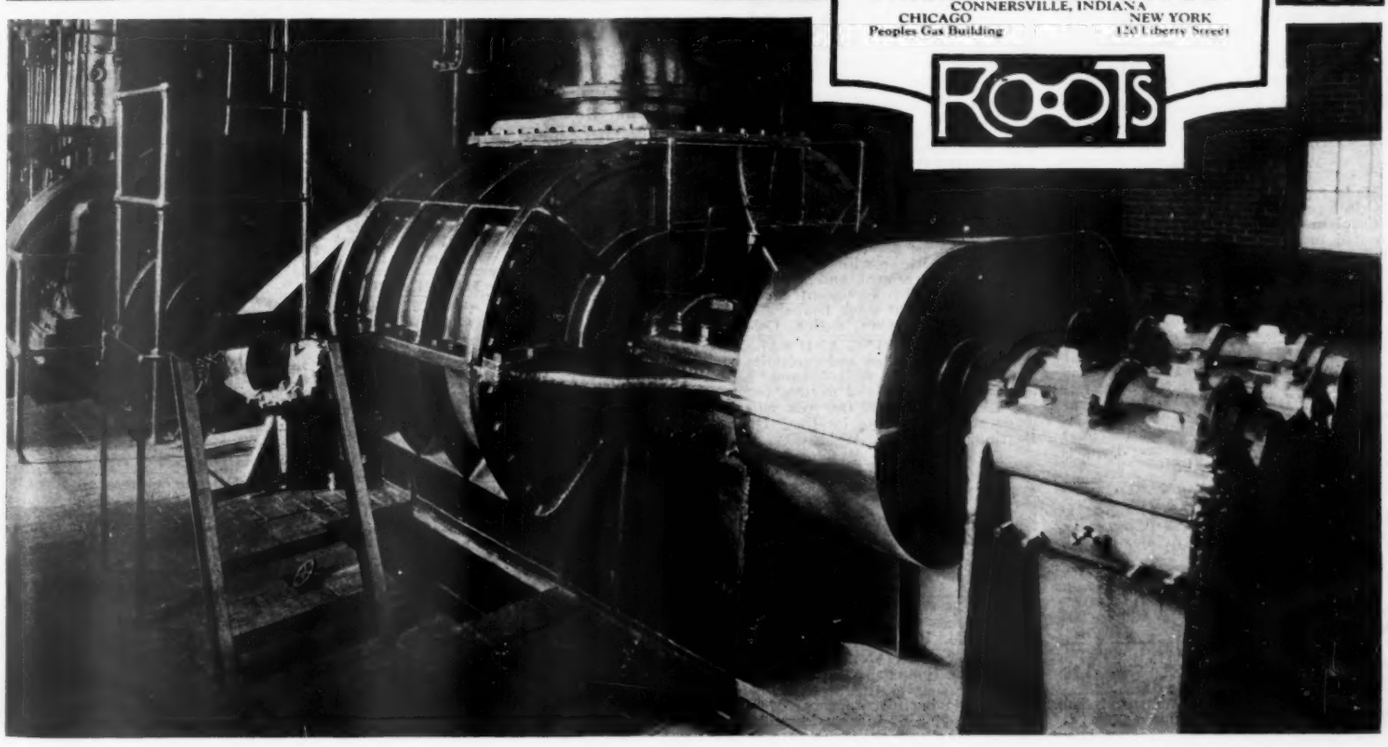

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FOR SALE — 11-25 H. P. Superiors; 4-25 H. P. Reids; 5-25 and 30 H. P. Bessemer Gas Engines. All in good condition and complete. Located in Burbank district. J. E. Galligan, Skelly Oil Co., Tulsa, Okla.

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MANUFACTURERS' REPRESENTATIVE
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WANTED — Associate with capital available for attractive opportunities in rapidly developing shallow field. Box 336, Owensboro, Ky.

CAPITAL—Before offering your securities to brokers, public or salesmen, write Box 26, 417 Arbuckle Bldg., Brooklyn, N. Y.

OWNER OF North half Sec. 92, Blk. O. W. Pecos Co., Texas, wants proposition. E. M. Barrett, Crescent City, Fla.

NEWLY ORGANIZED Corporation with ample financial backing wants shale or sand gas properties or might consider good producing oil property. Morey Oil Company, Box 6, Independence, Kans.

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AN ECONOMICAL and practical method of avoiding evaporation losses and preventing hydrogen sulphide corrosion of storage tanks. Patents issued and pending. Box C-211, The Oil and Gas Journal, Tulsa, Okla.

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WANTED office position by young Italian Nobleman, would like to get with some oil firm to learn the oil business. Can give the best of references of my character and honesty. Answering please write to Box C-210, The Oil and Gas Journal, Tulsa, Okla.

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HAVE $50,000 cash for good producing royalties preferably Oklahoma, Kansas and Louisiana; settled or semi-settled. Give full particulars. Address Box C-190, The Oil and Gas Journal, Tulsa, Okla.

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Chicago Market Opens Week Quietly

Barring Change to Cold Weather, No Prospect for Immediate Change. Spot Gasoline Demand Light, Distillates Slow

By J. B. Waldo

CHICAGO, Jan. 9.—The market opened the week quietly for all products on Monday and barring a change to cold weather, there is no reason to expect any material change. The larger business of last week was in the domestic fuel oils and the demand is absent now, dealers having secured supplies which are moving slowly to the consumers owing to the warmer weather. Bad storms are reported from some portions of the territory which is reducing the normal consumption of gasoline for the season of the year. The spot demand for gasoline was light today, orders against contracts forming the bulk of the business with only occasional cars ordered in the spot market. The U. S. Motor grade was rather easy in tone owing partly to offerings at 5½ cents Group 3 basis by refiners shipping from differential points near this city and partly to the lack of demand. The higher gravities were firmly held with a better demand than for the motor gravity.

Distillate Market

Kerosene was neglected. There was some business in distillates and zero gas oils but nothing like the rush of one week ago. One of the largest near-by refiners is taking orders for the 38-40 distillate at 3¼ cents and is offering zero gas oil rather dark but otherwise satisfactory at 2¾ cents. Several refiners will not meet these prices as they expect colder weather shortly which will increase the consumption and improve the demand on refiners.

There was no change in the fuel oil market where prices were unchanged but not strong particularly for the oil with only a fairly low cold test. Zero oils continue firm. The bulk of the fuel oil inquiry today was for a single month with little buying ahead on any kind of fuel oil.

The first part of last week was greatly influenced by the cold weather but aside from the demand for furnace oils there was little activity other than routine business. There were several active days for the furnace oil distributors. Other than the active demand for zero oils brought about by the heavy increase in domestic consumption, there was little buying. The demand was confined to the filling of the immediate necessities of the buyers and there was no hint even of a tendency to buy for future requirements. There was talk regarding improved conditions expected but just when these changes would come was admittedly uncertain.

There has been difficulty in obtaining yearly contracts not alone for gasoline but for any petroleum product. Fuel oil contracts are signed with hesitation. Marginal contracts on gasoline for 1928 are being closed slowly by some refiners who have always had a large number in previous seasons. If any refiner would make the kind of a contract that has been asked by some dealers, the refiner would have no difficulty in securing signatures to the contract.

The trouble is to devise a contract that will satisfy the dealer that he is amply protected in his profits from declines that are not of his own making. A flat price based on the present market with no advances and protection against declines in price would be acceptable. Others do not go that far. All that they want is a marginal contract based on the local service station price. Four or five refiners have offered contracts designed to meet the objections to the contracts in force last year. Some of these name a margin based on the local price but elastic in its figuring. If the local tank wagon price is reduced so that the cost to the dealer does not permit his receiving the full margin, the refiner stands half of the deficit and if the tank wagon price is advanced so that there is more than the stipulated margin, the refiner is to receive one-half the excess. One large organization has five different contract forms which it submits to its prospective customers. Experience has proven that the possibilities of loss far exceed the possibilities of any excess profit in any form of a contract which is based on the local tank wagon or station price.

Local Competition Blamed

Much of this insistence on some form of contract which will assure the dealer of a profit is caused by the local competition. In fact, local price cuts are almost invariably due to some form of excessive desire for business. Several dealers have pointed out that the increase in the number of stations, both bulk and drivein, is caused in great measure to the desire of the larger refiners for controlled distribution. Judging by the result as evidenced by the stations themselves, some of the large refiners desire to give the motoring public an opportunity to purchase the refinery brand of gasoline at frequent intervals along the main highways, in all the larger towns, and in some places of little importance. Other refiners seem to have a less definite plan but simply jump in with a station which they control if they do not own, wherever there seems to be a possible gallonage without regard to the existing sources of supply at that point.

One thing particularly criticized is the willingness of some to furnish equipment even to beginners in the business whose success is entirely problematical. In one instance a dealer had built a little wooden shack costing probably less than $500. His facilities were meager. A large company made him a proposition to handle its merchandise exclusively and furnished him with pumps, tanks, electric lighting, signs, and made a real service station out of the place. The business did not go.

Fast Bunco Work

Two foreign men appeared and succeeded in getting a lease of the property. No money was paid. They simply leased the station. On the ground that they were distributors of the great oil company, as witnessed by the signs, pumps and other bric-a-brac bearing the company's name, they got three loads of gasoline, a stock of motor oil and a cash register. The business lasted just long enough for their checks to be returned by the bank on which they were drawn. Creditors found the building and pumps intact and some 50 gallons of gasoline. The motor oil and all movables, including the cash register, had disappeared. Other instances illustrate the lax credit methods and the unwise policy of some of the largest organizations.

Dealers well established and with substantial investments complain of the way in which competition is increased through setting up concerns with little or no experience or capital where there is already extreme competition. Some of the dealers state that if the large companies would stop giving or leasing at nominal costs, pumps, tanks and other equipment and if the would stop installing stations where their only hope for success is in either driving some established dealer out of business or an unexpected increase in the demand, there would be less cutting of prices with all the attendant evils.

One of the troubles with a station business seems to be that a drive-in station once established is there to stay. Many owners fail but the station seems to live on some way. It is always there to compete and it is very largely because of this and the fact that the refiners in so many instances seem responsible in part for the increase in the competition that the established dealers feel that the refiners should take some of the risk and give them local protection in their contracts.

Like most industrial problems, there are two sides to the question and while the making of contracts with local protection would be a risky thing, some of the refiners have attempted to give a limited degree of this protection.

The Other Side

Another side of the picture is, of course, the practice of refiners of distributing their own product. The chain store is hardly a parallel case, for in all of these chains there is a great variety of articles sold and the competition is not confined to practically a single material as in the case in the stations where gasoline is the principal product vended.

The gasoline demand last week showed no change from the preceding weeks that would indicate any larger buying by the distributors than has been their practice for a year. They are still securing the bulk of their supplies through deliveries on contracts and spot orders were moderate in the total and individually for the immediate wants only. The higher tests continued to be in the best demand and prices were firm to strong.

A report was circulated that 60-62 400 endpoint could be bought somewhere at 6 cents. Two leasing marketers, to try this out, made a list of refiners and between them wired practically all of the Group 3 refiners. The lowest price for resale that was quoted them was 6⅜ cents. The 64-66 gravity was held with equal strength. On the other hand the U. S. Motor grade was quite freely quoted by several refiners at 5½ cents for resale and in some instances direct to the trade. This was not for delivery at differential points, but for anywhere in the territory. Refiners at differential points were selling at this price and less on a Group 3 basis.

In Chicago gasoline was available at 5½ cents to the trade although this was below the average of the market which was 5⅝ cents during the week. Several refiners were holding for 6 cents, but their business was very light. Most of these have considerable distribution of their own as well as more or less contract business so that they were not seriously overburdened with stocks.

Prices in Ohio were reported as lower and quotations figured from 5⅛ to 5⅜ Group 3 basis, by refiners located in several states, including Illinois and Indiana. The last purchase made by the city of Detroit for its supplies of gasoline was on the basis of 5.35 cents Group 3, and this was a flat price over three months. It was stated that gasoline could be bought for delivery from Toledo to Detroit and other eastern Michigan points at prices that equaled 5¼ cents Group 3 basis.

Demand fo Antiknock Brisk

The demand for the special antiknock gasolines has been active. It is increasingly evident that the present large demand from the motorists for a better motor fuel than the U. S. Motor grade is resulting in the displacement of this grade by the antiknock and higher test gasolines. This movement seems to be increasing rather than decreasing. Jobber after jobber reports a successful result to his offering of a better than U. S. Motor gasoline at what seems important increases in price. Several have built up a good business on 68-70 gasoline at a price which is 5 cents higher than the regular station price for the motor grade. There was a slow but rather steady demand for natural gasoline, the local market being unchanged as to prices.

The sales manager of a large refining organization wrote his local office manager asking what had become of the kerosene demand. What has become of it? The use of kerosene for light and heating has been so largely displaced by electricity that the chief uses of kerosene are for tractor and incubator fuel. Recently a friend tried to buy a small quantity of kerosene for his family use. He tried the grocery stores. Not one in his neighborhood had a drop. He tried the garages but they did not carry kerosene in stock, although they did have in some cases naphtha for cleaning. The inquirer finally found a little at a drug store. If there is not sufficient demand to enable the logical sources of supply to carry the article there cannot be any very general demand. The eletric light and heater have replaced the kerosene lamp and oil stoves in millions of homes and it is only in very out-of-the-way localities that there is a domestic demand for kerosene. Makers of cheap printing inks formerly used kerosene to make the so-called varnish which carried the pigment. Now they buy ink oil a heavier product.

Oldtimers in the oil industry here who remember when the only product was kerosene and that was shipped here in blue barrels on flat cars have to admit that its day as a household necessity is gone. It has become chiefly a product with a special and seasonable demand, with its use in the households largely confined to such districts as are not penetrated by the wires of the electric company. The demand here was light and prices easy with 4¼ cents the most common quotation for the 41-43 gravity. Stocks were reported to be more than sufficient, especially as it will not be until the time for the spring plowing before the demand will show the usual seasonable increase.

Cold Snap Stimulates Demand

The cold snap of last week resulted in active demand for all domestic heater oils, including distillates. Local distributors ordered in cars freely and the demand for single cars for immediate delivery from all over the territory was active. Many of these shipments were against contracts but there was an active demand in the spot market and so insistent was the call that in some cases a small premium was paid for immediate shipments.

The price situation was firm but there were no advances. The bulk of the business was placed at the high in the prevailing bracket of prices and some sellers who had been booking orders at 3¼ cents moved their price up to 4⅜ cents but it was only occasionally that a higher price was paid, and then for some special reason either prompt delivery or exceptional quality. Some distillates of the 38-40 straw class were still obtainable at 3¼ cents. The milder weather will give the distributors a chance to catch up on deliveries to consumers by slowing down the consumption but a steady demand is looked for.

The demand for the zero gas oils was large and almost every order called for rush delivery. There is a scarcity of the light straw zero gas oil and while the prevailing price for a zero straw gas oil was still not higher than 3⅜ cents some exceptionally light and sweet oil was sold at 3½ cents. The quality of the oil has everything to do with its usefulness for domestic heater oil. Hundreds of cars

have been rejected this season on account of the bad odor.

There are enough buyers who stick to the light colored oil to make a demand for these really in excess of the present supply. At least two local companies are offering a desirable domestic heater oil except that the color is not really light. One sample is about a No. 5 color, the other is darker. The one sells at 3 and the other at 2⅞ cents regularly yet these oils so far as actual merit in the firepot is concerned are just as good as any gas oil than can be found. Evidently some oil men are paying a premium of one-quarter to one-half cent a gallon for a light color. Commonly these light oils do not have quite as many thermal units as the darker oils. Apparently some effort might be profitably made to change the demand from light straw to the oils that are just as good or even better and only slightly darker in color. But the popular demand is hard to change.

In gas oils the supply of the unblended light oils is limited and they command a premium based on color alone with no material reason for the preference unless the public has been educated by the oil man.

Offerings Plentiful

Offerings of the other grades of gas oil than light straw zero are plentiful, and the price is firm. Refiners of the cherry to amber grade state that they find it difficult to sell at more than 3 cents and some sales are being made at 2¾ cents by refiners with large stocks of this grade. Aside from the zero oils there is only a fair demand reported.

One rather large gas order was placed last week and a number of bidders quoted 2½ cents but failed to land the order, which was placed, it is understood, at 2⅝ cents. One of the large Illinois traction and light companies was in the market for a few spot cars of U. G. I. oil last week. They had contracted for their January requirements and it is supposed that there was either an unexpected consumption or slow delivery. There was some other routine business in the straightrun oil with large buyers placing orders at 2½ cents or a little less, and small business going at 2⅝ cents for immediate delivery. Most of the buyers are placing their orders for a limited supply or for a month in advance.

Fuel oil has dragged with the single exception of some of the high gravity, low cold test oils. These are firmly held. The demand has been active for these with some refiners. The majority of these high gravity low cold test oils are blends and one refinery organization lists all of its blended products as fuel oil, even though the gravity be 32-36 or the usual gas oil gravity. Some tests made of the West Texas crude have discouraged oil men from attempting its sale here as the odor is too pronounced and disagreeable, which is a polite way of quoting what the oil men actually said of the samples they had tested.

There is a large amount of residual oil from refineries running on West Texas crude coming to this market, some from Texas refineries and much from plants located near to this city. This oil has a varying gravity, according to its shipper, of 19-22 to 23-26 and between. The cold test is zero, viscosity and flash low, and while the sulphur content is around 2 per cent there have been few complains regarding odor and these were early shipments and this fault has been corrected. Much of this product has been sold to buyers who would have used Smackover if it had been available.

The price for these residual oils to the consumer runs around 82½ cents. The present cost of Smackover fuel oil in quantities is 95 cents with no discount so that sellers are asking $1 to $1.02½ cents for this fuel.

Outlook Improving

The outlook for a larger industrial demand is mproving but some of the sellers believe that the increased demand for fuel oil will come too late to be of real benefit this season. The heavy buying for oil due to its use for heating drops off usually with the beginning of March so the February purchases will care for the March consumption so that to offset any increase in the demand due to greater manufacturing activity will come the reduction in demand with the early part of spring.

Many of the great industries have not yet reached the full tide of larger production and will not do so for another 30 days. January, so far as actual consumption is considered, is liable to be a rather poor month unless some unexpected and sudden change is made in the industrial situation. Industrial executives, while more hopeful of the future, have not reached that state of confidence which will make them authorize the purchase of supplies in excess of known requirements. Those who argue along this line regarding the fuel oil outlook for the current month would like to find themselves mistaken, but this is their conservative opinion.

Another argument is that when the demand for the heating oils drops off there will still be a great quantity of fuel oil from the West Texas crude available. This oil, which has been mentioned here, is commonly called McCamey fuel in the local trade from the idea that it is run from McCamey crude. One string of refineries has delivered large quantities of this oil. The present price for resale and to large buyers is 77½ cents a barrel Group 3 basis. Oil from some of the Humble plants is also being shipped here at about the same price. Much of this oil has gone to distributors, but many industrial plants have tried it with satisfaction.

It is argued here that the refiners of Oklahoma must have noticed some falling off in their sales in this territory by reason of these large supplies of fuel oil derived from the West Texas crudes. There seems to be no reason why this supply of fuel should be cut off. There is certainly plenty of crude from which to top it. There has been no large buying of fuel oil. Some of the industries have held up shipments on contracts until they are a large number of cars behind on their orders. Many of the industries are continuing to buy by the month and so far as can be found are planning to continue this method.

Business Cut Up

There is a good total of oil moving to the plants, but the business is badly cut up in one way or another. Some contracts are expiring shortly that call for prices ranging as high as $1.10 a barrel and up. These buyers will be unwilling to pay such prices even over a period with the present and recent spot market in mind. So the fuel oil seller is finding it necessary to hustle for business if he wants to get a fair share. Some are succeeding beyond their expectations. Others are falling short. There is business but it has to be gone after. As to prices there has been little change. The heavy industrial oils with just a fair cold tests are no stronger. The higher gravity low cold test oils are a little stronger.

The lubricating oil business is better with refiners than distributors or even compounders, according to reports. Several refiners report that their business in tank car lots has been good. The consumption is rather light, possibly fairly good on the higher grades of motor oils. Prices are stated by buyers to be favorable to them. Some contracts placed since the first of the year have been at prices that even close buyers considered low. Among the lowest bidders have been some of the large local plants, all of which are anxious to add to their business in lubricating oils.

Few Tank Wagon Changes

The gasoline tank wagon prices over the territory have not been generally changed. A few reductions have been made and some places have been brought back to normal. It seems difficult to adjust prices at some of these points where rates have been cut. In some cities in this state agreements have been made by all but one or two to restore the price, but the one or two were large companies holding out for some reason hard to determine when not acquainted with all particulars in each instance.

During the last week the attention of distributors was directed to their furnace oil business which was active as soon as the cold wave arrived in each town. Locally distributors were rushed to the limit working their men to midnight on some occasions and at the close of the week the dealers had not fully caught up with orders. Every dealer would have been glad to get extra trucks.

The gasoline demand suffered somewhat from the cold weather. Seldom have so few cars been seen on the streets in the central part of the city as on the coldest days of last week. This was partly caused by the heavy snows which with the cold made starting difficult and driving more or less hazardous. There was no change in the situation in the industry from the distributors standpoint.

EASTERN MARKETS ARE IN HESITANT MOOD

(Continued from Page 122)

familiar with the market, constitute a menace to the gasoline situation.

There has been a continued improvement in the demand for barreled and cased lubricants, gasoline and kerosene from South America and the Far East. Uruguay, especially, has been a large buyer of kerosene in cases.

Export Notes

Gasoline will pay an import duty in Panama of 10 per cent ad valorem as of January 1. The old duty was 5 cents per gallon. A gasoline and alcohol dehydration plant is to be bought and operated under government supervision and the mixture will be tested in government cars.

During the second quarter of 1927 Madagascar imported gasoline to the amount of 133,704 gallons, compared with 128,957 gallons in the corresponding period of 1926. Kerosene imports for the second quarter of 1927 amounted to 185,190 gallons, compared with 339,568 gallons for the corresponding months of the preceding year. Figures for the first quarter of the present year showed imports of 67,633 gallons of gasoline and 126,823 gallons of kerosene. This makes an importation during the first half of 1927 much below that of the first half of 1926, in spite of the steady progress of the automobile trade. This diminution is chiefly due to the cyclone and tidal wave which disabled the port of Tamatave in March, and is also an additional indication of the general decrease of import trade in almost all lines during the first half of the year as a consequence of the revalorization of the franc, and the prospect of heavy taxation. It is likely, however, that the second half of 1927 will show increased imports of both gasoline and kerosene.

Oil refineries in Burmah have shown considerable increase and improvement in recent years. The largest is at Syria, owned by the Burmah Oil Co. It has a capacity of 25,000 bbls. a day, all the crude being pumped to the plant through a pipe line 275 miles long. The second largest refinery is located at Thilwa and owned by the Indo-Burma Petroleum Co. This refinery has a capacity of 3,000 bbls. daily and manufactures kerosene, gasoline, lubricants, wax and candles. Following this is a refinery belonging to the British Burmah Petroleum Co., located at Seikyga. The United Oil Refineries, a company controlled by Indian capital, has recently constructed a refinery with a capacity of 2,000 bbls. daily at Rangoon.

Tanker Market and Movement

The oil tanker charter market surprised some students of the market during the first week of the new year by dipping to a new low level of rates. A fixture was made for the trade from Venezuela to the North Atlantic Seaboard at 17½ cents a barrel, a drop of 1 cent below the previous low rate.

New fixtures include the following:

Tanker Herman Falk, January loading, Venezuela to United Kingdom-Continent, 14s 6d per ton.

Tanker Agwimex, January loading, Venezuela to north of Hatteras, rate not named. Tanker Agwistone, same. Tanker Agwisun, same.

Tanker Antietam, Venezuela to north of Hatteras, February loading, crude, 17½ cents a barrel.

Principal Exports

The following table shows principal exports of petroleum and petroleum products from New York during the last three weeks; all figures in gallons unless otherwise noted):

	Jan. 4	Dec. 28	Dec. 21
Gasoline:			
Bulk	1,948,800	3,735,657	1,922,579
Cases	430,990	221,250	1,525,980
Kerosene:			
Bulk	357,000	1,470,000	662,494
Cases	555,500	931,200	2,494,626
Lubricating oil:			
Bulk	3,301,887	.....	.....
Barrels	572,150	808,100	943,700
Cases	142,250	95,080	100,650
Lubricating grease:			
Barrels (lbs.)	.....	531,900	102,600
Parrafin wax:			
Bags (lbs.)	110,000	1,537,360	387,200
Barrels (lbs.)	99,750	208,050	3,237,125
Petroleum asphalt:			
Barrels (tons)	3,418	185	268

The foregoing figures include all shipments of 500 bbls., 1,000 cases, or over.

Receipts at Atlantic Ports

Receipts of crude and refined oil at Atlantic Coast ports during the week ended January 4 are estimated at 3,679,000 bbls., a daily average of 526,000 bbls., compared with 4,289,000 bbls., or 613,000 bbls. a day, for the week ended December 28.

Receipts from the Gulf Coast totaled 2,321,000 bbls. and averaged 332,000 bbls. a day, against 2,521,000 bbls., or 360,000 a day, the preceding week.

Receipts from California for the week ended January 4 totaled 173,000 bbls., a daily average of 25,000 bbls. For the week ended December 28 they totaled 636,000 bbls, or 91,000 daily.

Imports from South America for the week of 791,000 bbls. or 113,000 bbls. daily were exactly the same as the preceding week. Imports from Mexico were 394,000 bbls. daily, an average of 56,000 bbls. daily, against 341,000 bbls., or 49,000 bbls. daily, for the week ended December 28.

The Hartol Products Co. has launched a new bunker oil barge, the "Century." This barge was the one-hundredth hull laid in the Federal shipyards at Port Newark, N. J. The vessel is 175 feet long, with a beam of 36½ feet and a draft of 12½ feet. It has a carrying capacity of 10,500 bbls., with an unusually large discharge rate of 3,000 bbls. an hour, compared with the average of about 1,200 bbls. hourly. The barge, which is probably the most modernly equipped in these waters, was christened by John Kiernan, manager of the marine department of the Hartol Products Co.

The following table shows estimated daily average receipts of crude and refined oil by water at Atlantic Coast ports for the last three weeks; also monthly record for the past 12 months (figures in barrels):

	Week Ended		
	Jan. 4	Dec. 28	Dec. 21
Gulf Coast	332,000	360,000	295,000
Pacific Coast	25,000	91,000	41,000
South America	113,000	113,000	198,000
Mexico	56,000	49,000	10,000
Total	526,000	613,000	544,000

	Daily Averages by Months				
1927:	Gulf	Pacific	S. Am.	Mexico	Total
Dec.	345,000	68,000	146,000	37,000	596,000
Nov.	318,000	62,000	109,000	42,000	531,000
Oct.	314,000	95,000	91,000	35,000	541,000
Sept.	336,000	97,000	99,000	69,000	601,000
Aug.	397,00	90,000	78,000	80,000	645,000
July	406,000	83,000	49,000	78,000	616,000
June	378,000	118,000	47,000	68,000	611,000
May	332,000	58,000	53,000	91,000	534,000
April	388,000	93,000	61,000	69,000	611,000
March	345,000	103,000	81,000	36,000	565,000
Feb.	379,000	89,000	48,000	40,000	556,000
Jan.	362,000	73,000	61,000	49,000	545,000

The foregoing figures are based on the carrying capacity of incoming oil-laden tankers.

EXTENDING TRANSMISSION LINES

SHREVEPORT, La., Jan. 7.—Increasing use of lectric power for pumping wells in the south Arkansas oil fields is given as one reason why the Arkansas Power & Light Co. is spending approximately $750,000 in rebuilding and extending its high tension transmission system from Little Rock and Pine Bluff south and west for which current is supplied by a hydro-electric plant at Remmel Dam, 12 miles from Hot Springs, and the Sterlington steam plant in the Monroe, La., gas field. Two more turbo-generator units are being installed at the Sterlington plant, making a total of four units, two of 10,000 horsepower each and two of 30,000 horsepower each.

Orifice Meters in Gasoline Industry

Type of Equipment, Location and Maintenance Have Direct Bearing on Profits of Gas and Gasoline Industries

Gas Measurement Committee, California Natural Gasoline Association.

IMPORTANCE OF ORIFICE METERS

In the natural gas and gasoline industry of today, gas measurement plays an important part. Just how important is not ordinarily realized until one stops to reflect on the frequent reference made to given volumes of gas. Little thought is usually accorded the method used to determine the volumes mentioned or the difficulties which may have been encountered in their determination. In making this statement we, of course, have in mind only the personnel of the industry not directly concerned with the installation, operation, or maintenance of measuring devices.

It might not be amiss to stress somewhat the need for accurate gas measurements. During the year 1926 the total receipts of gas by the major wholesale distributors in Southern California were approximately 66 billion cubic feet, which, conservatively, had a cash value of $6,600,000. Since the major portion of this gas was produced from properties under lease, we feel safe in saying that an average of one-sixth of this sum, or over a million dollars, was required to be paid in royalties.

In connection with the production of natural gasoline, of which there were over 375 million gallons during 1926, accurate gas measurements figure largely, since the major portion of all natural gasoline is extracted from gas produced on leased properties, and consequently requires accurate apportionment on a quantity-quality basis to insure the payment of royalties to the proper recipients. Neither should we forget that future policies, as regards natural gasoline plant investment, are largely dependent on gas measurements upon which gas production decline curves are based, and that such measurements likewise form the basis for various city, county and state taxes, running into considerable money.

In considering the various types of gas meters most prevalent in the wholesale gas and natural gasoline business, we find that the combination of the differential pressure recording instrument with an orifice in the line, the whole being commonly known to the industry as the orifice meter, is most widely favored. This is due to the flexibility of range afforded, since by simply changing static pressure springs and orifice sizes, volumes of gas ranging in quantity from a few thousand to millions of cubic feet, and in pressure from a few pounds to hundreds, can be measured by the same instrument. In view of this prevalence of the orifice meter, we have confined this paper to a discussion of this type instrument, but we might mention in passing that the dial type volumetric meters, either positive or proportional, are much better suited for certain classes of measurement. We have in mind instances where the conditions of flow are uniform from day to day and especially in such cases where the volume is not required to be known daily. In these instances a reading of the dial may be taken at regular intervals, such as the last day of each month, and the volume of gas metered computed by subtracting the immediately preceding from the latest reading.

Three Divisions

Orifice meters, in the common sense of the name, may be segregated into three divisions, but the use of the orifice plate is essential to all three, the classification being dependent on the type of recording element used. We may classify the three divisions as the mercury float type, electrical resistance type and the spring type. Although the spring, or diaphragm type, was the first used, it has rapidly been replaced by the mercury float type until we find this principal almost universally used in the industry today.

The mercury type float evolved from the original mercury U-tube, in which pressure applied to one leg of the tube causes a depression of the mercury in one side and a corresponding rise in the other side, the resultant difference in levels being measured in linear inches of mercury and converted into inches of water for purposes of computing gas volumes. The mercury float type orifice meter of today embodies this principle in that the construction of the instrument is such that the elements of the U-tube are contained, and in the part corresponding to one leg of the old U-tube a metal float rides on the mercury. The fluctuating differential pressure, as gas passes through the line at varying rates of flow, causes a rise and fall of the mercury, and the resultant movement of the float actuates a recording pen on the chart.

Much could be written concerning the evolution from the first crude recording instrument to the precisely made one of the present area; however, it is not deemed advisable in this paper to deal to any great extent with the construction of the various makes of recording instruments of today. Suffice it to say they all contain the elements for causing, registering and recording differential pressures.

Since the static, or prevailing line pressure, has a direct bearing in the computation of volumes, it was a comparatively simple conversion from the Bourdon tube indicating pressure gauge to the present helical spring type recording gauge. The earlier instruments of this sort used in conjunction with the differential pressure recorder were housed in separate cases, but the need for a compact instrument brought about the present type combining the differential and static pressure recording elements in a single case, using two pens with differently colored inks to enable the chart reader to differentiate between the records.

Although the orifice meter is a mechanical device comparatively simple in nature, it does require a certain amount of intelligent handling. A novice would probably encounter a number of apparently unexplainable difficulties, a few of which, together with our version of the solution therefor, will now be mentioned.

Importance of Location

Much thought should be given to proper location in a contemplated orifice meter installation, as it has been found by experience that the accuracy of meters located too close to compressor intakes or discharges is affected by pulsating flow. It is also the teaching of experience that the best results obtain when a straight run of pipe of approximately 20 feet precedes and follows the orifice plate; this because the turbulent action of gas caused by its passage through valves, regulators, elbows, etc., also has a noticeable effect on the accuracy of measurement. Mercury float type differential recorders must always be set absolutely level to prevent the float rubbing on the walls of the mercury chamber, and thus hindering the registration of proper differential.

It is considered not the best practice to locate the recording instrument at any great distance from the orifice plate, because the sensitivity of the recording elements is deadened in that too much time elapses between the changes of differential pressure at the orifice and the receipt of consequent impressions at the recording instrument. If, however, each practice is considered necessary, for any of a number of reasons, it is well to provide larger than the standard hookup lines and fittings.

Weather Conditions

In the care of orifice meters, attention should be given to climatic conditions because much of the grief of the meter inspector and chart reader is caused by charts getting wet in the rainy and foggy season, causing the ink records to run and blur, and in cases of severe dampness charts have a tendency to curl and warp and thus prevent the pens leaving any except a sporadic record of the varying impressions indicated by the differential and static pressure elements. During the dry season the meter inspector has comparatively little to cause him worry, and except for an occasional thorough overhauling of the instrument and cleaning of the mercury, which can be done with nitric acid, the orifice meters themselves will give service day in and day out that reflects credit to their makers.

At the overhead periods the small pipes leading from the instrument to the pipe or flange taps should be blown out to insure against an accumulation of sediment forming a constriction which might affect the accurate transmission of differential pressure changes to the recording device. Valve stems on these small pipe lines should be carefully watched for leaks since a small leak on one side of the instrument or the other has the same effect as a change in the differential pressure, causing an erroneous registration on the chart.

In the measurement of wet gas it is quite often the case that distillate will accumulate in the mercury chamber of the recording instrument. This should be guarded against by as frequent removal as necessary because the additional weight of the distillate on the mercury column throws the meter out of calibration. A certain measure of satisfaction has resulted from the method of inserting a 2 by 6 inch chamber filled with excelsior in both sides of the meter hookup, the excelsior acting as a scrubber and preventing a large part of the condensate reaching the mercury pot. It is advisable, of course, to replace the excelsior at regular intervals.

Orifice Design

Orifice plates should be very carefully made and the orifice itself should be accurately bored to the thousandth part of an inch and most meter supervisors follow the practice of computing a special air coefficient if an orifice is more than five thousandths larger or smaller than the size for which the coefficient was originally computed. It is likewise important that the orifice should be machined at exact right angles to the upstream side of the orifice plate, that is, the side facing the direction from which the flow of gas is coming. It is equally worthy of especial attention to ascertain that the center of the orifice is in the exact center of the pipe line.

Orifice plates should be removed and inspected occasionally and if found to be eroded should be replaced immediately. We know of instances where an eroded orifice has caused a lowering of the correct differential of as much as 2 inches of water. This, depending on the size of orifices in use, can cause a very considerable percentage of error in the measurement. This trouble is, of course, more prevalent where certain substances, sulphur, for example, are present in the gas and can be overcome to a great extent by the use of plates constructed of metals which are impervious to such action.

Specific Gravity

Specific gravity of the gas being measured must be considered and since it is "subject to change without notice," specific gravity determinations should be made as often as convenient, preferably not less than once each month. This is especially true of gas produced in a comparatively new field, as gas from an older field is usually found to be of fairly constant density. Recent practice has developed that certain makes of specific gravity recording instruments are now considered dependable and accurate and if the installation be of sufficient permanence and importance possibly the cost of such an instrument might be warranted.

Temperature should be treated in a similar manner, except that temperature fluctuations are somewhat dependent upon climatic changes and upon whether the gas measured is flowing through a buried or naked line. For test or other work requiring the highest degree of accuracy, barometric pressure should be considered and proper allowance made in computing measured volumes.

Individual well measurement can be accomplished much more feasibly with the orifice meter than by the somewhat more common methods of using the Pitot tube, or orifice well tester. The orifice meter, of course, requires that proper hookup be provided, consisting of an orifice flange with proper connections for setting up the meter. In the case of wells having a large gas production it is advisable to maintain a meter on the line constantly; however, for small producing wells, a meter set on the line at periodic intervals should give a sufficient record of gas production for most purposes, it being advisable at all times to have a lease meter constantly measuring the total lease production.

Application With Vacuum

The orifice meter method is especially adapted to securing measurement of wells producing under a vacuum. To use the Pitot tube or other open flow method requires blowing the well down, which sometimes takes considerable time with its resultant waste of power, and then measuring the gas flows under non-operating conditions. The measurement may take a couple of hours' time or more if the well be a "header," that is, a well from which the gas flows nonuniformly, and during this time the production blows to the air.

It will also be found that the total lease meter will give a figure sometimes considerably in excess of the total of the individual open-flow measurements, the reason being that the wells produce more gas under vacuum, which is recorded by the lease meter, but does not show up in open-flow atmospheric measurements. By measuring the individual wells

with an orifice meter under actual operating conditions, there should be no great difference between the sum of individual measurements and the total lease meter.

The causes of pulsating flow, which, incidentally, is one of the meter man's chief worries, are numerous. The principal cause is compressor operation on a line and in this case pulsation is noticeably evident both on the intake and discharge lines. Other causes include the natural heading of wells, rythmic operation of check valves and regulators, and the flow of gas through valves and other line fittings.

In order to solve the pulsation problems as they arise, it is first necessary to distinguish between the vibration of the pen arm, such as that caused by the rapid opening and closing of a check valve, for instance, and the fluctuating differential pressure caused by turbulent flow. Pen arm vibration may be cured by changing the location or size of check valves or other fittings, or by changing the regulator adjustment if the vibration be from such a cause.

The rapid rising and falling of the differential pen which is caused by agitated flow, however, must be treated somewhat differently to insure accurate measurement. In some instances a baffle plate, constructed of one-quarter inch material having a number of small holes of one-quarter inch diameter, has been known to solve the pulsation problem and produce a comparatively steady registration on the chart. The number of holes in such a baffle plate should be governed by the size of the orifice in the installation, and the total area of the small holes should be slightly less than the area of the main orifice, thus causing a slight back-pressure at the baffle plate and preventing the full fluctuating line pressure from impinging on the orifice plate. The baffle plate can be one or two joints of pipe ahead of the orifice, depending on local pertinent conditions. This arrangement has a tendency to remove any swirling or impulsing effect from the flow before it reaches the orifice and has given very satisfactory results in a number of cases.

Straightening Veins

So-called straightening veins have been used with a certain degree of satisfaction to assist in measuring turbulent flow. As the name implies, these veins give the effect of straightening the flow of gas by removing eddying and swirling. These can be constructed in many ways, but to describe them we will say that they resemble in appearance several pieces of corrugated sheet iron of some predetermined length rolled within each other so that the corrugations do not mesh and the whole placed in a joint of pipe preceding the orifice in the line.

The use of bushings, or check valves, in the recording instrument to retard the rapid rising and falling of mercury is not usually satisfactory. While this method does tend to produce a steady record on the chart, it is generally found that the record so produced is not a true average of the peaks and hollows of the former irregular record. It is quite obvious therefore that the securing of a steady differential pressure record on the chart does not necessarily indicate that the measurement is true. The same effect can be secured by throttling the valves on connecting lines between the recording instrument and the line, and what is accomplished is simply a deadening effect on the instrument of the true line pressure fluctuations. Large chambers connected into the meter hookup lines also produce this deadening effect on the meter, but do not guarantee accuracy, while providing a steady differential chart record. However, if chambers of sufficient size can be installed in the line on which the meter is operating, so that the effect is one of pouring the turbulent gas into a large reservoir and then drawing out of the reservoir at a regular even rate, there is no apparent reason why correct measurement should not result. The swirling, eddying or impulsing loses its identity in the large chamber and the gas measured at its outlet has all the characteristics of steadily flowing gas. This method is impractical, of course, where the flow is so great as to make prohibitive the size and cost of the chambers which would be required.

It has been our experience that line connections tend to give more accurate readings than flange connections in the measurement of a pulsating flow, although the reason for this is not known. In all probability, however, it is due to the fact that the farther the line taps are removed from the orifice plate, naturally the less accentuated would be the impulses.

Measuring the Intake

We have in mind an instance of measuring the intake to several low-pressure compressors which may be worth mentioning here. The arrangement was one where several field gathering lines collected raw gas and delivered it into a common header to which the compressor intake lines were connected. The measuring apparatus consisted of two meters installed on the intake lines between the compressors and the header. The compressors were pulling from 14 to 16 inches of mercury vacuum through 10 and 12-inch lines. The volume of gas handled was approximately 10,000,000 cubic feet per day. It was found that the two intake meters read consistently low, this being proved by the meters at the absorbers which remeasured the raw gas after the same was discharged from the compressors and had passed through some cooling coils.

Considerable condensate was collected in these coils and in spite of this and the normal compressor shrinkage, the absorber meters read consistently higher than the intake meters. Located not more than 20 feet from the compressors themselves, and operating on wet gas, there was considerable pulsation and the record was difficult to compute. These meters were removed and in their stead six separate installations were made on the raw gas lines from 100 to 200 yards from the compressors and accurate measurement resulted. It is believed that the low readings on the two original meters were traceable to a combination of several contributing factors, propinquity to the compressors, fluid in the line, and the high velocity of the gas at those points preventing the true recovery of differential pressures being registered on the chart. It should be said, in justice to those who made the original installations, that the meters were installed over eight years ago when measurement by orifice meter was not so universally accomplished as now, and consequently little was known of the effect the various contributing factors had on the gas being measured. In addition, the item of investment, which must be considered, was in favor of the original installation, which consisted of only two meters, while the latter installation required six.

It is well known that the accumulation of liquid in gas lines at the low points causes pulsation of the flow. This is simply remedied, however, by the insertion of drips at the proper locations, which, if bled at proper times, will eliminate pulsation from this score.

ROCKY MOUNTAIN AREA

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cline, is drilling in sandy lime at 2,695 feet. Continental Oil Co.'s No. 1 Boundary Butte, Section 23-43-22, is drilling at 2,125 feet.

Montana

Montana has experienced extremes of temperature within the past week. The early part of the week temperatures as low as 54 degrees below zero were reported from some sections of the state, with all points recording temperatures of from 15 to 25 below. Roads in many areas were blocked with snow, making travel by car impossible. The latter part of the week almost summer temperatures prevailed, and unless the weather changes again, field operations should soon resume.

The Kevin Sunburst Field was practically shut down during the week. Only one new well was started, and drilling troubles due to the cold were reported from several locations. The Illinois Pipe Line Co. had trouble keeping the gathering lines on the east side of the field open, and runs for the week may be affected. No completions were reported from the field the past week. The Co-operative Oil Co. well on Section 12-34-2, Adams lease, which had a commercial showing at the Ellis-Madison contact at 1,390 feet, is shut down on account of the weather. It is the intention to drill this well to the first break in the lime, and if production is not found at that level it will be plugged back to the contact and shot. The Barnhill-Baker-Barger No. 1 on Section 9-34-1, which last week started to make oil after showing only water for two months, filled two large tanks with crude and is still holding up around 200 bbls. a day, according to reports from the field.

The Pondera and Bannatyne areas are inactive, due to weather conditions. If the more moderate temperatures of the past few days continue, these districts should be at work again. It is reported that the Genou Oil & Gas Co., which completed two producing wells in the Bannatyne Field, will start work on three new holes as soon as the weather will permit. These wells will lie along the west line of the southeast quarter of Section 5-25-1, near the discovery well, and will be the first wells to be drilled in this area since No. 2 was completed. There have been perhaps a dozen dry holes drilled in this field since the Genou producers were completed, but none has been within a mile and a quarter of the discovery. The Texac Pacific Coal & Oil Co. will drill in the southwestern part of the field on acreage recently taken over from its subsidiary, the Homestake Exporation Co. These wells will naturally compel the drilling of offsets, and the Bannatyne district should see considerable activity.

Great Falls dispatches carry a report that 30 wells have been contracted for in the Pondera Field. There are two wells drilling on this structure, and these will probably be early completions if the weather will permit.

With almost no exceptions, the wildcat wells in Montana are shut down for the present. Reports from the Cat Creek Field are routine with practically no new work.

ROCKY MOUNTAIN PRODUCTION
Runs From the Field

Wyoming	
Salt Creek	42,440
Big Muddy	2,680
Grass Creek	2,310
Elk Basin	920
Greybull	20
Dutton Creek	10
Rock River	2,360
Lance Creek	660
LaBarge	630
Mule Creek	680
Poison Spider	110
Hamilton	610
Osage	390
Lander	890
Ferris	50
Byron	40
Lost Soldier	2,560
Simpson Ridge	80
Total Wyoming	57,440
Montana	
Cat Creek	1,830
Lake Basin	170
Kevin-Sunburst	9,000
Total Montana	11,000
Colorado	
Florence	837
Moffat	1,189
Fort Collins	3,003
Iles Dome	1,037
Rangely	100
Tow Creek	367
Boulder	25
Total Colorado	6,558
New Mexico	
Rattlesnake	54
Hogback	640
Cap Rock	107
Table Mesa	467
Artesia	1,452
Total New Mexico	2,720
Total Rocky Mountain	77,718

PLAN IS PROPOSED FOR INDUSTRY'S CO-OPERATION

(Continued from Page 29)

of justice cannot be expected to give a clean bill of health in advance to a movement that can so readily be subverted to improper use. So long as the movement is utilized properly there would seem to be no danger of Federal authorities regarding it as illegal. They have gone as far as can reasonably be expected to make this clear. It would appear to be the oil industry's move. With regard to the states, the legality of local organizations particularly in Texas is not so clear, but it is probable local pool organizations would not be regarded as infractions of the law provided care is exercised in the use to which they are put and also provided their activities are carried on in an open, frank manner so as to inspire public confidence.

Central Committee

With regard to the central committee. Prudence would indicate that some discussion of that point first be undertaken with Federal or state officials and that steps be taken carefully, for admittedly it is on new ground. But since the need of it as an emergency feature during serious overproduction periods is obvious and it can be terminated at the termination of the emergency, it might be safe to proceed without legislation. Legislation, both Federal and state, clothing some governmental agencies with power to exercise this discretion of authorizing restriction during overproduction periods would remove this doubt that otherwise exists. It is believed the oil industry, through some proper agency, should proceed toward initiating that part of the machinery about which there is no doubt and press for governmental expression on that which is not so clear.

In regard to the functions of the local organizations. It is conceived such organizations would be supplied with or employ petroleum engineering talent which would study the local pool as a unit, taking into account the varied interests, lease requirements, etc., and eventually propose for consideration of the property owners such measures of co-operation as will be for the common good and reduce development to a scale consistent with the amount of proven acreage to be drilled. Under this arrangement, for instance, it is doubted whether any 30 to 60 deep wells would be started immediately after the completion of one wildcat well. Through its machinery of co-operation, sound development and engineering practices would gradually be applied to the field in somewhat the same manner that they are now being applied to the field controlled by one management. The well blocked up pool under the control of one ownership is never found to be a menace to the industry, and it likewise gives most assurance of service to the public.

Arkansas is a familiar and characteristic example of the fallacy of uncontrolled competitive extraction. The Smackover Pool was one of the greatest of modern times. Its oil and gas would have supplied energy for permanent industries over a generation sufficient to have made Arkansas an important industrial state. In the unrestrained competitive manner in which it was developed, these were dissipated—with detriment to the industry, little profit to the owners and with practically no permanent good to Arkansas in so far as building industries is concerned. However, this is typical of the results of unrestricted competitive extraction in all cut-up fields. It is a condition that can easily be changed if efficient co-operative machinery is established.

OIL STATION MANAGER ASKS TO TRADE JOBS

An amusing incident is reported in connection with the taking over of the oil business in Spain as a government monopoly. At one station a lieutenant colonel appeared to carry out the attachment process. The director of the oil station delivered the inventory, and then wrote a letter to Premier Primo de Rivera stating that since he had been replaced as oil distributor by an army officer, he presumed there was a vacancy in the army and he would like to have it. The author of the letter has been arrested and brought to Madrid.

REFINING AND MARKETING

AMERICAN COMPANY GETS SPANISH OIL CONTRACT

A contract has been entered into by the Petroleum Export Association, Inc., and the Spanish oil monopoly which recently assumed control of the oil industry in Spain, by which the American company will furnish all the crude oil refined at Spanish refineries and 25 per cent of the refined products. The oil contract covers a period of five years. The contract becomes effective January 1., according to an announcement by J. S. Cullinan, president of the company.

The Petroleum Export Association, Inc., is a subsidiary of the American Republics Corp. The company through allied and subsidiary companies has large producing properties in the Mid-Continent and Gulf Coast area.

In connection with the announcement it is pointed out that the agreement nullifies the reports that the Spanish monopoly would secure its petroleum supplies from the Russian government. At the time the Spanish oil monopoly took over, under government control, the business and properties of American and other oil companies doing business in Spain, it was indicated that the monopoly would seek its supplies from the Black Sea region. The American company chiefly affected was Standard Oil, whose tanks, docks and equipment were acquired by the monopoly.

Mr. Cullinan said the export association's contract was made with a company organized by a group of Spanish bankers which, under terms of the royal decree creating the monopoly, will furnish all petroleum and petroleum products for Spain.

CITIES SERVICE BUYS WISCONSIN STATIONS

The Cities Service Oil Co. has purchased the marketing properties of the McGovern-Place Oil Co. of Racine, Wis. The properties consist of several bulk and drive-in stations in that section of Wisconsin. The property will become a part of the C. H. Lockwood Oil Co. with stations in Wisconsin which were recently purchased by the Cities Service Co.

With the addition of the McGovern Place properties the Cities Service Co. now has approximately 300 stations in Wisconsin. E. T. McGovern, who has been president of the McGovern-Place Oil Co., will continue to manage the properties.

I. O. M. A. ADDITIONS

CHICAGO, Jan. 9.—Two additions have been made to the staff of executives of the Independent Oil Men of America. Both are well-known oil men. J. S. Hoagland, for many years widely known as the manager of the Chicago office of the Union Petroleum Co., and after that organization was closed out manager of tank car sales at the Chicago office of the W. H. Barber Co., and for the past year occupying a similar position with Hughes & Co., has been placed in charge of the refinery sales department. In announcing the appointment, L. V. Nicholas, president of the organization, stated that the four refinery members of the organization, namely the Vickers Petroleum Co., the Kanotex Refining Co., the Omar Refining Co. and the Panhandle Refining Co., have equally subscribed the funds necessary to maintain the department and defray all overhead in connection with it.

The other addition to the staff is that of E. E. Jensen, who on January 1, took entire charge of the department of Red Hat Motor Oils. His duties are to be that of a sales executive. Mr. Jensen came to the I. O. M. A. about 30 days ago and since that time has been familiarizing himself with conditions and planning for the future. He was formerly with the Pierce Petroleum Corp. at St. Louis. Specifications for Red Hat pressure grease are stated to be about ready for announcement.

PROPOSE CONTINUING TEXAS EMERGENCY TAX

Because of a technicality in the Texas gasoline tax law, which provided for an emergency tax of 1 cent per gallon to be collected from March 1, 1927, to September 1, 1928, Governor Moody is receiving numerous requests to call a special session of the legislature to provide for the continuation of the collection of the full tax after September 1. The original tax was 1 cent and, effective March 1 of last year, this was raised to 3 cents, and was to be automatically reduced to 2 cents September 1, 1928.

The increased revenue was needed to secure full government aid and to meet a deficit at that time and now a surplus of $3,000,000 is reported in the Highway Commission treasury. Although expenses will occur which will reduce this surplus and possibly exceed the money collected, the Governor is not in favor of calling a special meeting of the legislature at this time. The legislature will not meet on its regular schedule until January of 1929. At present approximately $1,500,000 is being supplied the state treasury per month from this source and if the 2-cent tax is automatically made effective the revenue will be reduced to $1,000,000 monthly.

WESTERN REFINERS WILL MEET AT KANSAS CITY

The annual meeting of the Western Petroleum Refiners Association will be held at the Muehlbach Hotel, Kansas City, Mo., on March 6, according to an announcement by Howard Bennette, managing director of the association. Kansas City was selected by vote of the membership.

The one-day session will be spent in informal discussion of any matters of interest to the membership. The annual election of officers will also take place at the Kansas City meeting.

NORTH AMERICAN CAR LEASES PIERCE STORAGE

The North American Car Corp. has leased from the Pierce Petroleum Corp. a number of storage tanks located at the latter's Texas City, Tex., terminal. The storage, which totals 900,000 bbls., includes ten 55,000-bbl. storage tanks.

This storage will be used in connection with the terminal operations of the North American corporation. The corporation has contracted for a large movement of crude oil and refined products during 1928 for both export and coastwise movement.

P. H. ROHDE DIES

No appointment has been made as sales manager of the Standard Oil Co. of Kansas, according to an announcement by A. S. Hopkins, president of the company. The position became vacant upon the death of Paul H. Rohde, who died December 30, following an illness of several months.

Mr. Rohde was widely known among the refining and marketing fraternity. He was a director of the company in charge of sales and traffic work for a period of several years. He moved to Neodesha following the dissolution of the Standard company in 1911.

LOUISIANA REFINING CO. HAS SALES CONVENTION

SHREVEPORT, La., Jan. 6.—The fourth annual sales convention of the Louisiana Oil Refining Corp. closed here today after a three-day session. The three days were devoted to a discussion of sales problems of the company and outlining plans for the coming year.

A trip through the Bossier City refinery, sponsored by H. S. Lee, superintendent, featured the morning program of the second day, following a general assembly in the Josephine ballroom. Dean R. E. Smith of Centenary College opened the afternoon program Wednesday with a brief address. Col. F. M. Witherspoon in an address, "Down Through the Years with Loreco," told some interesting history of the organization. "The Romance of Oil Exploration," as told by M. E. Wilson, manager of the production department of the vast corporation, proved very interesting as well as educational.

M. E. Waldron, manager of the pipe line department, spoke on the "Transportation of Loreco Crude," while R. B. Pierce, manager of the refining department, told of the refining of the raw product. "Guarding the Good Name of Loreco," was given by F. J. Mechlin, chief chemist of the organization. In brief, the afternoon speakers traced the product from the ground to the consumer.

A number of round table discussions on the sale of the Loreco products led by various district salesmanagers, and a number of sales talks which will take in many phases of operation, will feature the program Thursday. The annual sales convention cabaret banquet was held Thursday evening in the ballroom of the Hotel Youree with F. E. Wilkerson as toastmaster. W. T. Mayo, commissioner of public utilities, as the principal speaker of the event.

Among those attending the convention were the following: H. F. Gough, agent at Cincinnati, Ohio; K. Dyson, of Springfield, sales manager of the Ohio division; A. L. Edsell, of Springfield, general manager of the Ohio division; G. F. Matthews, of Springfield, division advertising manager; H. G. Ridley, of Springfield, manager of wholesale sales in the Ohio division; Raymond C. France, Springfield, district sales manager; C. E. Wilkerson, district sales manager, Jackson, Miss.; W. S. Waters, district sales manager at Cincinnati, Ohio; H. B. Wren, Jr., district sales manager, Texarkana, Ark.-Tex.

ROXANA SITE PURCHASE SIMPLY A PRECAUTION

The Roxana Petroleum Corp., during the past week exercised an option on a tract of 650 acres located on the Houston Ship Channel near Deer Park. According to officials at the St. Louis general offices the corporation at this time does not have any definite plans for the utilization of the site.

It will possibly be utilized later either as a refinery site or as a terminal for the shipment of crude oil and refined products. According to company officials desirable sites along the Houston Ship Channel are difficult to obtain so that the corporation decided to avail itself of the tract at this time. If not needed by the corporation it will be sold later.

It is expected that the Roxana corporation or the Shell company will eventually extend its distributing facilities to points along the Atlantic Seaboard. In the event that program materializes it will probably be necessary for the corporation to build a refinery along either the Gulf Coast or East Coast.

SALES OF GASOLINE SUBSTITUTE INCREASE

By Charles E. Kern

Washington Bureau, The Oil and Gas Journal

WASHINGTON, D. C., Jan. 7.—During July, 1927, sales of Usga, the Brazilian gasoline substitute made from sugar alcohol, amounted to about 10 per cent of the gasoline sales; in October this figure had risen to about 15 per cent. It has been noticed that the tendency of drivers of passenger cars has been to return to gasoline, while truck drivers have been using Usga in increasing quantities, especially for long runs. Experience seems to indicate that Usga is most satisfactory for long runs in hot weather. The fuel is available in drums at one or two important interior cities, besides at filling stations in Recife and Olinda, and in the neighborhood of the sugar mills producing it. The use of raw sugar alcohol has been revived in the vicinity of the mills by the propaganda in favor of Usga.

Recently a new fuel, also based on alcohol, has appeared under the name of Nortina. This fuel has been subjected to several public tests and is reported to have demonstrated an efficiency about half-way between that of Usga and that of gasoline. All that has been learned to date regarding Nortina, which is not yet available for general use, is that it appears to be a slight modification of Usga.

DOHENY INTERESTS EXPANDING OUTLETS

LOS ANGELES, Calif., Jan. 7.—In order to expand its market outlets in northern California and states to the north, the Doheny interests are now forming a $25,000,000 company in California to be known as the Pacific Petroleum Co. A permit for the organization of the company has been filed with the California Corporation Commission. The request for the permit provides for the issuance of 1,000,000 shares of $25 each.

It is understood that the new company will rapidly provide marketing outlets for the Pan American Western Petroleum Co., which is controlled by the Doheny family. The present market outlets are largely confined to the Los Angeles area.

Frank R. Seaver, until recently vice president and general manager of the Huasteca Petroleum Co., a subsidiary of the Pan American interests will be the president of the company. E. L. Doheny, Jr., will be elected vice president.

IMPORTANT CHANGES ON M'CAMEY RATES

Important changes became effective January 2 on freight rates from McCamey, Tex., to middle western points. The new rates apply on shipments from the refinery of the Humble Oil & Refining Co. to middle western points.

The new rate of refined oils is 36½ cents per 100 pounds to St. Louis, 42½ cents to Chicago, and 45½ cents to Milwaukee, Wis. On fuel oil and gas oils the new rates are 30½ cents to St. Louis, 36½ cents to Chicago, and 39½ cents to Milwaukee.

The old rates on refined oils were 37 5 cents to St. Louis, 44.5 cents to Chicago, and 47.5 cents to Milwaukee. On heavy oils the former rates were 31 cents to St. Louis, 37 cents to Chicago, and 39 cents to Milwaukee.

Brief Items for Plant Operators

Motor Design and Fuels Determine Compression Ratio

Based on present manufacturing conditions the maximum compression ratio in automotive engines with a 3 to 4-inch bore will be 7:1, and 6.5:1 in the case of a 4 to 5½-inch bore, according to H. R. Ricardo. In a paper presented at a meeting of the Institute of Petroleum Technologists Mr. Ricardo pointed out several interesting features of mechanical design of automotive engines in their relation to detonation. In regard to compression ratios he said:

"Supposing that we are given a fuel which will not detonate under any circumstances, what compression ratio would we choose? As we raise the ratio of compression we raise the power output and efficiency more or less proportionately to the increase in the air-cycle efficiency. The theoretical ideal efficiency at first rises rapidly with increase in compression, but flattens out later on. For example, for a compression ratio of 4:1 it is 42.6 per cent; for 5:1, 47.5 per cent; for 6:1, 51.2 per cent; for 7:1, 54 per cent; for 8:1, 56.5 per cent. By raising the ratio from 4 to 5:1 we gain 11 per cent in power and efficiency; from 5 to 6 we gain a further 8 per cent; from 6 to 7, a further 5½ per cent, and 7 to 8 only a further 4½ per cent, and so on. As we raise the ratio of compression so we raise also the maximum pressure, but in this case we follow a constantly rising, not a flattening, curve. Thus for a compression ratio of 4:1 the peak pressure at maximum torque is approximately 360 pounds per square inch; at a ratio of 5:1 it is 490; at 6:1, 625; at 7:1, 770, and at 8:1, 930 pounds per square inch. Thus between 5:1 and 8:1 the maximum peak pressure is very nearly doubled, while the ideal efficiency is increased by about 19 per cent.

"The internal friction of the engine is very largely dependent upon the weight of its reciprocating and rotating members, and as we increase the bearing surface of, for example, the connecting rod big-end, so we increase the weight of that member and require yet more surface in consequence thereof. Clearly the weight of such parts as the piston, connecting rod, and, to some extent, of the crankshaft is or should be a function of the maximum pressure they will have to withstand. So far as relatively low ratios of compression are concerned, the minimum weight compatible with heat dissipation, stiffness, and practical foundry and machining conditions will afford ample strength to resist the peak pressure; but when we come to consider compression ratios of the order of 8:1 and upwards this is no longer the case, and we then find that the additional weight necessary to enable these parts to sustain the higher pressures will involve additional friction to an extent which may easily absorb the whole of the gain in efficiency resulting from the higher compression; this, as we have seen, amounts to a bare 4½ per cent between 7:1 and 8:1—nor is this the only consideration, for, in the case of automobile engines, the mean load factor is only about one-third, hence an increase in internal friction amounting to 2 per cent at full load becomes 6 per cent at the normal running condition.

"As a broad generalization, one can say fairly safely that it will not pay, at all events for automobile engines, to employ a higher compression when to do so necessitates adding any extra weight to the reciprocating parts.

"There is another consideration to be taken into account, namely, that as we increase the ratio of compression so the volume of the combustion space is reduced, while its area, which is controlled by the accommodation of the valves, remains practically the same. Although the actual heat loss to the surface of the cylinder head during combustion is normally very small, yet the loss due to the delayed and incomplete combustion of the stagnant layer of gas adhering to this surface is very serious, and this, of course, increases in proportion as the ratio of surface to volume is increased, that is, as the compression ratio is raised.

"Under the average manufacturing conditions of today, taking all the above factors into account and assuming that we have a fuel which will not detonate under any circumstances, the author considered that we should compromise on the following compression ratios: For cylinders of 2 to 2½-inch bore, 8:1; 2½ to 3-inch bore, 7.5:1; 3 to 4-inch, 7:1; 4 to 5½-inch, 6.5:1. In the case of racing car or airplane engines one can afford to go to higher ratios."

EDELEANU'S PROCESS ADDED BY SHELL CO.

Equipment for the treating of California distillates by the Edeleanu process at the Martinez, California refinery of the Shell company, is being assembled and with the addition of this type of equipment in the Shell plant, along with the previous installations made at the Associated Avon refinery and the Union Oil Co.'s plant at Oleum, a large volume of low sulphur kerosene and other oils will be available from California.

Doctor Edeleau has explained this process but prefaced his explanation with the assertion that while a professor in a Rumanian university he was commissioned by the king to conduct experiments to determine the best way of treating Rumanian crude oil to the end that a burning oil equal to the best American kerosenes might be obtained. Telling of his process, he says:

"The prevailing method of refining crude oil after the first distillation is to employ sulphuric acid, which brings the impurities to the bottom, where they are drawn off as a sludge. This method is never entirely effective and, especially when used with thoroughness, it is rather expensive. The large amounts of sulphuric acid required, as well as the substances removed, are a total loss.

"I found that liquid sulphur dioxide would dissolve the impurities in crude oil and leave a distillate of previously unattainable purity, without necessitating any waste whatsoever. The liquid sulphur dioxide containing the dissolved impurities is withdrawn into small steam-heated stills, where it is driven off as a gas. It then is collected, chilled, compressed, liquefied and made ready for use again. The residue is excellent for use as a high-grade oil. Nothing is lost."

NEW CRACKING PLANT

Organized for the purpose of constructing a cracking plant where oils and other products will be treated, Process Construction Co., a California corporation, has received a permit from J. W. Friedlander, State Corporation Commissioner, to issue stock. The company, according to its application, is a subsidiary of Western Oil & Refining Co. It stated it had entered into a contract with the Gasoline Process Co. for the construction of the plant. Officers of the company are Richard Florian, L. J. Hart, A. A. G. Scherbel, A. W. Taylor and Arthur G. Baker.

AMONG THE TECHNICAL MEN

As technologist of the Crown Central Petroleum Corp., James T. B. Bowles has established a reputation as one of the leading technical men among Gulf Coast refiners. Mr. Bowles has been technologist at the Crown Central since 1925, going to that company from the Tide Water Oil Co.

James T. B. Bowles

While associated with Tide Water, Mr. Bowles was technologist at that company's Bayonne, N. J., refinery, being engaged chiefly in investigating processes and development of products.

In addition to these connections, Mr. Bowles has had an extensive experience in chemical and engineering work. Graduating in 1907 from the University of Michigan at Ann Arbor with a bachelor of science degree in chemical engineering he became connected with the University of Wisconsin and for two years did chemical research work there.

Following that he went to Panama with the Panama Canal Commission in the construction engineering department and later served with the American expeditionary forces at Vera Cruz, Mexico, as sanitary engineer. Returning to the United States he became engaged in consulting engineering and chemical work at New York City until the World War, during which he served with the sanitary engineers as a major and later was promoted to lieutenant-colonel.

Leaving the service he became associated with the Tide Water Oil Co. Since going to Crown Central Petroleum Corp. as technologist, Mr. Bowles has been elected a director of the corporation. He is a member of several technical societies and trade organizations.

Explain Patent And Trade Mark Laws in Germany

By Dr. Heinrich Goldbeck
Patent Agent, Berlin

While the Deutsche Burgerliche Gesetzbuch (German Civil Code, generally known as B. G. B.) and the Handelsgesetzbuch (German Commercial Code, H. G. B.) grant their protection to the nationals (private individuals and corporate bodies) of all countries, quite independent of their being domiciled or having a branch in Germany, and without the presupposition of reciprocity, the Patent Trade Mark and Design Acts, as well as the Unfair Competition Act, contain a special proviso under which Germany is prepared to afford to foreigners also the protection of these laws to their fullest extent, namely, when in the foreigner's own country, German traders and industrials enjoy a corresponding protection.

This proviso has been rendered null and void in practically all civilized countries (up to the present 37 in numbers) by virtue of the Union Treaty which has in the meantime been concluded.

In Article 2 of this treaty, the subjects or nationals of each of the contracting countries in all countries of the union, with regard to patents, registered trade samples, industrial samples and designs, manufacturing or trade marks, trade names, marks of origin, the fighting of unfair competition are specifically promised the advantages which the laws in question grant at the present moment or intend to grant in future to their own nationals.

The foreigner has therefore no grounds for apprehending that he will not find sufficient protection in the German courts as is confirmed by facts in the way of numerous judicial decisions. There are a fair number of so-called master patents whose proprietors are foreigners, and who enjoy in Germany very extensive protection against infringements.

The Institute for Registered Samples (Das Institut der Gebrauchsmuster) is very little known abroad apart from Japan and Poland; it is, therefore, very little taken advantage of by foreigners.

As opposed to that, lawsuits for infringement of trademarks and trade names are not rare; thus, a short time ago, the Supreme Court of Jusitce in Leipzig (Reichsgericht), decided that the right of the foreigner living abroad with regard to the use of the name (Eskimo) shall be protected against infringement in Germany in the same way as that of the German himself, and actually pronounced judgment against the German firm guilty of infringement.

Even when it is a question of a firm domiciled abroad, which has so far not sold its goods in Germany, it is sufficient if, according to the German point of view, such a firm has manifested its intention to run its undertaking in Germany, by applying to the German Patent Office for grant of a trademark. In this respect the point of view of the equality or similarity of the goods does not affect the question as to whether or not the same paragraph of the B. G. B. should apply. The foreign firm acting as plaintiff was in the last cited case especially protected by a great number of rights. The action was based on the Trade Marks Act, on the Unfair Competition Act, on the paragraph regarding names of the German Civil Code (B. G. B.), as well as ultimately on the Union Treaty above mentioned.

REFINERY AND CRUDE PRICES

Quotations on Principal Refined Products and Crude Petroleum Markets in All the American Oil Fields

GASOLINE AND NAPHTHA

	Jan. 10		Jan. 3		Dec. 27.	
OKLAHOMA (Group 3)—						
50-52 450 endpoint	.05½	.05⅝	.05½	.05⅝	.05⅝	
56-58 450 endpoint	.05½	.05⅝	.05½	.05⅝	.05⅝	
58-60 450 endpoint	.05½	.05⅝	.05⅝		.05⅝	.05¾
58-60 437 endpoint (U. S. Motor)	.05⅝	.06	.05¾	.06	.05¾	.06
60-62 400 endpoint	.06¼	.06½	.06⅜	.06½	.06⅜	.06½
64-66 375 endpoint	.06¾		.06⅞	.07	.06⅞	
68-70 360 endpoint	.07	.07⅛	.07⅛		.07⅛	
64-66 437 endpoint (blend)	.05⅝	.05¾	.05¾		.05⅞	.06
KANSAS—						
58-60 437 endpoint (U. S. Motor)	.05¾	.06	.05¾	.06	.06⅛	.06¼
NORTH TEXAS—						
56-58 450 endpoint	.05½		.05½		.05⅝	
58-60 450 endpoint	.05½		.05½		.05⅝	
58-60 437 endpoint (U. S. Motor)	.05⅝	.05⅞	.05¾	.06	.05¾	.06
60-62 400 endpoint	.06⅜		.06⅜	.06½	.06⅜	.06½
64-66 390 endpoint	.06½	.06⅝	.06½	.06⅝	.06½	.06⅝
64-66 375 endpoint	.06¾		.06⅞		.06⅞	
68-70 360 endpoint	.07		.07	.07⅛	.07	.07⅛
64-66 437 endpoint (blend)	.05⅝	.05¾	.05¾		.05⅞	.06
NORTH LOUISIANA—						
58-60 437 endpoint (U. S. Motor)	.06½		.06½	.06¾	.06½	.06¾
ARKANSAS—						
58-60 437 endpoint (U. S. Motor)	.06⅜		.06⅜	.06⅝	.06⅜	.06⅝
PENNSYLVANIA—						
52-54 Naphtha	.07½	.07¾	.07¾	.08	.07¾	.08
54-56 Naphtha	.07½	.07¾	.07¾	.08	.07¾	.08
58-60 Gasoline	.07¾	.08	.07⅞	.08⅛	.08	.08⅛
60 Gasoline	.08		.08½	.08¾	.08¾	.09
62 Gasoline	.08¾	.09	.08¾	.09	.09⅛	.09¼
64 Gasoline	.09	.09¼	.09	.09¼	.09¼	.09½
CALIFORNIA—						
58-60 437 endpoint (U. S. Motor) domestic	.08½	.09½	.09	.10	.09	.10
CHICAGO DISTRICT (Based on Group 3)—						
50-52 450 endpoint (Naphtha)	.05⅝		.05⅝		.05¾	
56-58 450 endpoint	.05⅝		.05⅝		.05¾	
58-60 437 endpoint (U. S. Motor)	.05⅝	.06	.05⅝	.06	.05¾	.06
60-62 400 endpoint	.06½		.06½		.06⅜	.06½
64-66 375 endpoint	.06⅞	.07	.06⅞	.07	.06⅞	.07
68-70 360 endpoint	.07⅛	.07⅜	.07⅛	.07⅜	.07⅛	.07⅜
64-66 437 endpoint (blend)	.05⅞		.05⅞		.06	.06¼

NATURAL GASOLINE

	Jan. 10		Jan. 3		Dec. 27	
OKLAHOMA (Group 3)—						
Grade A, 72-79.9, 375 e.p., rec. 90%	.05¼		.05¼		.05¼	
Grade AA, 80-87.9, 375 e.p., rec. 90%	.04⅞	.05	.04⅞	.05	.04⅞	.05
Grade B, 76-83.9, 375 e.p., rec. 85%	.04¼		.04	.04¼	.04¼	
Grade BB, 84-92, 375 e.p., rec. 85%	.04	.04⅛	.04	.04⅛	.04	.04⅛
Grade C, 80-92, 375 e.p., rec. 78%	.03⅝		.03½	.03¾	.03½	
NORTH TEXAS—						
Grade A, 72-79.9, 375 e.p., rec. 90%	.05¼		.05¼		.05¼	
Grade AA, 80-87.9, 375 e.p., rec. 90%	.04⅞		.04⅞		.04⅞	
Grade B, 76-83.9, 375 e.p., rec. 85%	.04¼	.04¼	.04	.04¼	.04⅛	.04¼
Grade BB, 84-92, 375 e.p., rec. 85%	.04		.04		.04	
Grade C, 80-92, 375 e.p., rec. 78%	.03⅝		.03½	.03⅝	.03½	.03⅝
NORTH LOUISIANA—						
Grade AA, 80-87, 375 e.p., rec. 90%	.05¼		.05¼		.05¼	
Grade BB, 84-92, 375 e.p., rec. 85%	.05⅛		.05⅛		.05⅛	
Grade C, 80-92, 375 e.p., rec. 78%	.04¾		.04¾		.04¾	
CALIFORNIA—						
75-85, 375, 390 endpoint	.08½	.09	.08½	.09	.08½	.09
CHICAGO DISTRICT (Based on Group 3)—						
Grade A, 72-79.9, 375 e.p., rec. 90%	.05¼		.05¼		.05¼	.05⅜
Grade AA, 80-87.9, 375 e.p., rec. 90%	.04⅞	.05	.04⅞		.04⅞	
Grade B, 76-83.9, 375 e.p., rec. 85%	.04¼		.04		.04¼	
Grade BB, 84-92, 375 e.p., rec. 85%	.04	.04⅛	.04		.04	.04¼
Grade C, 80-90, 375 e.p., rec. 78%	.03⅝		.03½	.03⅝	.03½	

Note: All natural gasoline, except California, is noncorrosive.

BURNING OIL

	Jan. 10		Jan. 3		Dec. 27	
KANSAS—						
41-43 water white Kerosene	.04½		.04½		.04½	.04⅝
OKLAHOMA (Group 3)—						
41-43 water white Kerosene	.04¼		.04¼		.04¼	.04½
42-44 water white Kerosene	.04¾		.04¾	.05	.04¾	.05
NORTH LOUISIANA—						
41-43 prime white Kerosene	.05		.05		.05	
NORTH TEXAS—						
41-43 water white Kerosene	.04⅛	.04⅜	.04⅛	.04⅜	.04¼	.04½
40-42 water white Kerosene	.04⅜		.04⅛		.04⅜	.04¼
ARKANSAS—						
41-43 water white Kerosene	.05		.05		.05	
PENNSYLVANIA—						
43 Kerosene prime white	.06	.06¼	.06⅛	.06⅜	.06⅛	.06⅜
45 Kerosene water white	.06¼	.06½	.06¼	.06½	.06¼	.06½
46 Kerosene water white	.06½	.06¾	.06½	.06¾	.06½	.06¾
47 Kerosene water white	.07	.07⅛	.07	.07¼	.07	.07¼
300 Mineral Seal	.07	.07¼	.07¼	.07½	.07¼	.07½
CALIFORNIA—						
38-40 water white Kero. (high burning test)	.05½	.06	.05½	.06	.05½	.06
Engine distillate, 43-45, 445 endpoint	.07	.07¾	.07	.07¾	.07	.07¾
Engine distillate, 42-44, 480 endpoint	.06¾	.07	.06¾	.07	.06¾	.07
CHICAGO DISTRICT (Based on Group 3)—						
41-43 water white Kerosene	.04¼	.04⅜	.04¼	.04½	.04⅜	.04½
42-44 water white Kerosene	.04½	.04¾	.04¾	.05	.04¾	.05

FUEL OILS

	Jan. 10		Jan. 3		Dec. 27	
KANSAS—						
18-20 Fuel Oil, per bbl.	.77½	.80	*.75	.80	.80	
22-26 Fuel Oil, per bbl.	.80	.82½	*.77½	.80	.80	.85
32-36 Gas Oil	.02½		.02½		.02½	
38-40 Distillate	.03¼	.03⅜	.03¼	.03⅜	.03¼	.03⅜

*These prices, through error, were reversed in the January 5 issue.

OKLAHOMA (Group 3)—						
Below 18 Fuel Oil, per bbl.	.70	.75	.70	.75	.70	.75
18-22 Fuel Oil, per bbl.	.75	.77½	.75	.77½	.75	.77½
22-26 Fuel Oil, per bbl.	.77½	.80	.77½	.80	.77½	.80
24-26 Fuel Oil, per bbl.	.80	.85	.80	.85	.80	.85
26-30 Fuel Oil, per bbl.	.85	.87½	.85	.87½	.85	.87½
28-30 Fuel Oil, per bbl.	.90	.95	.90	.95	.90	.95
32-36 Gas Oil (dark)	.02¼	.02⅜	.02¼	.02⅜	.02¼	.02⅜
32-36 Gas Oil (straw overhead)	.02⅜	.02½	.02⅜	.02½	.02⅜	.02⅝
36-38 Distillate	.03	.03¼	.03	.03¼	.03	.03¼
38-40 Straw Distillate	.03	.03½	.03	.03½	.03	.03½
NORTH TEXAS—						
24-26 Fuel Oil (Sellers' cars), per bbl.	.75	.80	.75	.80	.75	.80
32-36 Gas Oil (straw)	.02¼		.02¼		.02¼	
38-40 Straw Distillate	.03		.03		.03	
NORTH LOUISIANA—						
18-20 Fuel Oil, per bbl.	1.00		1.00		1.00	
32-36 Gas Oil	.03	.03¼	.03	.03¼	.03	.03¼
ARKANSAS—						
33-36 Distillate	.03½	.03¾	.03½	.03¾	.03½	.03¾
32-36 Gas Oil (straw)	.02¾		.02¾		.02¾	
16-20 Refinery Fuel Oil, per bbl.	.95		.95		.95	
GULF COAST (South Texas)—						
Gas Oil	.04¼	.04½	.03⅞	.04	.03⅞	.04
Fuel Oil, per bbl.	1.25	1.30	1.25	1.30	1.25	1.30
PENNSYLVANIA—						
30-34 Fuel Oil, per bbl.	.04⅜	.04⅝	.04¼	.04⅝	.04¼	.04⅝
36-40 Fuel Oil, per bbl.	.04½	.04¾	.04⅜	.04⅝	.04⅜	.04⅝
CALIFORNIA—						
33-36 Distillate	.03½	.03¾	.03¼	.03¾	.03¼	.03⅜
27-32 Distillate	.02¼	.03	.02¼	.03	.02¼	.03
*15-20 Fuel Oil, Bunker (at tide water)	1.00		1.00		1.00	
15-20 Fuel Oil (cargo lots), per bbl.	.90		.90		.90	
27 plus Diesel, per bbl.	1.15	1.19	1.15	1.19	1.15	1.19
CHICAGO DISTRICT (Based on Group 3)—						
24-26 Fuel Oil (sellers' cars) Group 3, bbl.	.77½	.82½	.77½	.82½	.80	.82½
22-26 Fuel Oil (sellers' cars) Group 3, bbl.	.75	.80	.75	.80	.77½	.80
18-22 (Group 3), per bbl.	.72½	.75	.72½	.75	.75	.77½
16-20 Smackover, per bbl.	1.00	1.02½	1.00		1.00	
32-36 Gas Oil (zero)	.02¾	.03	.02¾	.03	.02¾	.02⅞
32-36 Gas Oil (industrial)	.02½	.02⅝	.02½	.02⅝	.02½	
36-38 Distillate	.03⅛	.03¼	.03⅛	.03¼	.03⅛	
38-40 Straw Distillate	.03¼	.03½	.03¼	.03⅜	.03¼	.03⅜

*Bunkers.

LUBRICATING OIL AND WAX

OKLAHOMA (Group 3)—	Jan. 10		Jan. 3		Dec. 27	
100 vis., 2 color, 20-25 cold test	.06¼	.06½	.06¼	.06½	.06¼	.06½
100 vis., 3 colr, 20-25 cold test	.06	.06¼	.06	.06¼	.06	.06¼
150 vis., 3 color, 20-25 cold test	.08¼	.08½	.08¼	.08½	.08¼	.08½
150 vis., 4 color, 20-25 cold test	.08	.08¼	.08	.08¼	.08	.08¼
180 vis., 3 color, 23-28 cold test	.09⅜	.10	.09⅜	.10	.09⅜	.10
180 vis., 4 color, 23-28 cold test	.09¼	.09¾	.09¼	.09¾	.09¼	.09¾
180 vis., 5 color, 23-28 cold test	.09⅜	.09½	.09⅜	.09½	.09⅜	.09½
200 vis., 3 color, 23-28 cold test	.09½	.10½	.09½	.10½	.09½	.10½
200 vis., 4 color, 23-28 cold test	.09⅝	.10¼	.09⅝	.10¼	.09⅝	.10¼
200 vis., 5 color, 23-28 cold test	.09¼	.10	.09¼	.10	.09¼	.10
240 vis., 3 color, 25-30 cold test	.13¾	.14	.13¾	.14	.13¾	.14
240 vis., 4 color, 25-30 cold test	.13¼	.13½	.13¼	.13½	.13¼	.13½
240 vis., 5 color, 25-30 cold test	.12¼	.12½	.12¼	.12½	.12¼	.12½
280 vis., 3 color, 25-30 cold test	.15½	.16	.15½	.16	.15½	.16
280 vis., 4 color, 25-30 cold test	.15	.15½	.15	.15½	.15	.15½
280 vis., 5 color, 25-30 cold test	.14	.14½	.14	.14½	.14	.14½
Cylinder Stocks:						
600, steam refined, light green	.08	.09½	.08	.09½	.08	.09½
600, steam refined, dark green	.07	.07½	.07	.07½	.07	.07½
190-200 vis. @ 210 Bright Stock	.30	.32	.30	.32	.30	.32
150-160 vis. @ 210 Bright Stock	.23	.25	.24	.25	.24	.25
Waxes:						
124-126 White Crude Scale Wax	.02⅝		.02½	.02⅝	.02½	.02⅝
PENNSYLVANIA—						
34 Neutral	.07½	.07¾	.07½	.07¾	.07½	.07¾
34 Sundebloom	.07¾	.08	.07¾	.08	.07¾	.08
36 Miners' Neutral	.07½	.07¾	.07½	.07¾	.07½	.07¾
150, 3 color	.26½	.27	.26½	.27	.26½	.27
180, 3 color	.31	.31½	.31	.31½	.31	.31½
200, 3 color	.32	.32½	.32	.32½	.32	.32½
220, 3 color	.34½	.35	.34½	.35	.35½	.35
600, steam refined	.09½	.10	.09½	.10	.09¼	.09¾
635, steam refined	.11	.11¼	.11	.11¼	.10½	.11
650, steam refined	.11½	.12	.11½	.12	.11¼	.11¾
600, Pennsylvania flash	.15	.16	.15	.16	.15	.16
*550, E filtered	.15¾	.16	.15¾	.16	.15¾	.16
*600, E filtered	.16½	.17	.16½	.17	.16½	.17
600, E filtered	.15½	.16	.15½	.16	.15½	.16
600, D filtered	.24½	.25	.24½	.25	.24½	.25
550, E filtered	.15½	.16	.15½	.16	.15½	.16
550, D filtered	.21½	.22	.21½	.22	.21½	.22
Pennsylvania Bright Stock	.28½	.29	.28½	.29	.28	.28½
†122-124 White Crude Scale Wax	.02⅞	.03	.02⅞	.03	.02⅞	.03
124-126 White Crude Scale Wax	.02⅞	.03	.02⅞	.03	.02⅞	.03

*At Warren, Pa †At New York City.

GULF COAST (South Texas)—						
No. 2 color, 100 vis., pale oil	.06½	.07½	.06¼	.07	.06¼	.07
No. 3 color, 200 vis., pale oil	.09	.09½	.08¾	.09	.08¾	.09
No. 3 color, 300 vis., pale oil	.10½	.11½	.10	.10½	.10	.10½
No. 3½ color, 500 vis., pale oil	.12	.13	.11½	.12	.11½	.12
No. 4 color, 750 vis., pale oil	.14	.15	.14	.14½	.14	.14½
No. 5 to 6 color, 200 vis., red oil	.07½	.08	.07½	.08	.07½	.08
No. 5 to 6 color, 300 vis., red oil	.08½	.09	.08½	.09	.08½	.09
No. 5 to 6 color, 500 vis., red oil	.09½	.10½	.09½	.10½	.09½	.10½
No. 5 to 6 color, 750 vis., red oil	.12	.12½	.12	.12½	.12	.12½
No. 2½ color, 200 vis., pale filtered	.11½	.12	.11½	.12½	.11½	.12½
No. 2½ color, 300 vis., pale filtered	.13	.13½	.13	.13½	.13	.13½

REFINERY AND CRUDE PRICES

Quotations on Principal Refined Products and Crude Petroleum Markets in All the American Oil Fields

No. 2½ color, 500 vis., pale filtered	.14	.15	.14	.14½	.14	.14½
No. 2½-3 color, 750 vis., pale filtered	.17½	.19	.17½	.19	.17½	.19
CALIFORNIA—						
130 vis., 2½-3 color	.09	.10	.09	.10	.09	.10
200 vis., 2½-3 color	.10	.10½	.10	.10½	.10	.10½
300 vis., 3-3½ color	.10½	.11	.10½	.11	.10½	.11
350 vis., 3½-4 color	.11	.12	.11	.12	.11	.12
400 vis., 3½-4 color	.13	.14	.13	.14	.13	.14
Red Neutral:						
200 vis., 4½-5 color	.08½	.09	.08½	.09	.08½	.09
300 vis., 5-6 color	.09	.09½	.09	.09½	.09	.09½
400 vis., 5-6 color	.11	.11½	.11	.11½	.11	.11½
500 vis., 4½-5 color	.11¼	.12	.11¼	.12	.11¼	.12
500 vis., 5-6½ color	.11	.11½	.11	.11½	.11	.11½
600 vis., 6 plus color	.12	.12½	.12	.12½	.12	.12½

Note: Bright stocks are not manufactured commercially on the Pacific Coast.

NEW YORK (BAYONNE) REFINERY PRICES

	Jan. 10	Jan. 3	Dec. 27
Gasoline, U. S. Motor, 58-60 437	.08¼	.08¼	.08¼
Kerosene, water white, 41-43	.07½	.07½	.07½
*Fuel Oil, bunker "C," 14-16, per bbl.	1.35	1.35	1.35
*Fuel Oil, Diesel, 28-30, per bbl.	2.10	2.10	2.10
Gas Oil, 28 plus	.05½	.05½	.05½
25 pale Paraffin Oil	.12	.12	.12
28 pale Paraffin Oil	.07	.07	.07
285 red Paraffin Oil	.11½	.11½	.11½
250 red Paraffin Oil	.10½	.10½	.10½
225 red Paraffin Oil	.09½	.09½	.09½
200 red Paraffin Oil	.09	.09	.09
Refined Wax:			
120-122 a.m.p., per lb.	.03⅞	.03⅞	.03⅞
125-127 a.m.p., per lb.	.04	.04	.03⅞
130-132 a.m.p., per lb.	.04½	.04½	.04½
135-137 a.m.p., per lb.	.05¼	.05¼	.05¼
Petrolatum, in bbls., carload lots, per lb.:			
Dark green	.01⅞	.01⅞	.01⅞
Amber	.03⅜	.03⅜	.03⅜
Extra amber	.03¾	.03¾	.03¾
Cream	.06½	.06½	.06½
Lily White	.08½	.08½	.08½
Snow white	.09½	.09½	.08

*Lighterage, 6.5c a barrel extra.

NEW YORK (BAYONNE) EXPORT PRICES

	Jan. 10	Jan. 3	Dec. 27
Gasoline, U. S. Motor, 58-60, 437, in cases	.2390	.2390	.2390
Kerosene, standard white, in cases	.1715	.1715	.1715
Kerosene, water white, in cases	.1815	.1815	.1815
600 steam refined cylinder stock, in bbls.	.17	.17	.17
635, steam refined	.19	.19	.19
650, steam refined	.20	.20	.20
600, Pennsylvania flash	.23	.23	.23
630, Pennsylvania flash	.35	.35	.35
600, Warren E	.25	.25	.25
600, Oil City E	.24	.24	.24
Light 135 Bright Stock	.40	.40	.40
Dark 135 Bright Stock	.38	.38	.38

LOS ANGELES EXPORT PRICES

	Jan. 10		Jan. 3		Dec. 27	
Kerosene, water white	.04½	.05	.04¾	.05	.04¾	.05
U. S. Motor Gasoline, 53-55 437 e.p.	.06	.06⅛	.06	.06⅛	.06	.06⅛

CALIFORNIA CRUDE PRICES

Standard Oil Co.-Union Oil Co. (Effective April 1, 1927)*

Gravity—	Fullerton, Seal Beach, Long Beach, Huntington Beach, Richfield, Rosecrans-Dom'guez, Torrance-Inglewood [1]	Whittier, La Habra, Montebello [2]	Kern River, Newhall-McKittrick, Midway-Sunset, Lost Hills, Belridge, Buena Vista Hills [3]	Coyote [4]	Santa Fe Springs [5]	Coalinga [6]	Wheeler Ridge [7]	Santa Maria, Ventura, Orcutt, Salt Lake [8]
14°	.85	.85	.75	.85	....	.75	.75	.85
15°	.85	.85	.75	.85	....	.75	.75	.85
16°	.85	.85	.75	.85	....	.75	.75	.85
17°	.85	.85	.75	.85	....	.75	.75	.85
18°	.85	.85	.75	.85	....	.75	.75	.85
19°	.85	.85	.75	.85	....	.75	.75	.85
20°	.85	.85	.77	.85	....	.76	.76	.85
21°	.86	.85	.79	.86	.85	.77	.77	.85
22°	.87	.85	.81	.87	.85	.78	.78	.85
23°	.88	.85	.83	.88	.85	.79	.79	.85
24°	.89	.85	.85	.89	.85	.80	.80	.85
25°	.90	.86	.87	.90	.86	.81	.81	.86
26°	.92	.87	.89	.91	.87	.83	.82	.87
27°	.94	.88	.91	.92	.88	.85	.83	.88
28°	.96	.89	.93	.93	.89	.87	....	.89
29°	.98	.90	.96	.94	.91	.89	....	.91
30°	1.00	.91	.99	.96	.93	.91	....	.93
31°	1.02	....	1.02	....	.95	.93	....	.95
32°	1.06	....	1.06	....	.97	.95	....	.97
33°	1.09	....	1.08	....	.99	.97	....	.99
34°	1.12	....	1.11	....	1.01	.99	....	1.01
35°	1.15	....	....	....	1.03	1.01	....	1.03
36°	1.18	....	....	....	1.06	....	....	1.06
37°	1.21	....	....	....	1.09	....	....	1.09
38°	1.24	....	....	....	1.12	....	....	1.12
39°	1.27	....	....	....	1.15	....	....	1.15
40°	1.30	....	....	....	....	....	....	....
41°	1.33	....	....	....	....	....	....	....
42°	1.36	....	....	....	....	....	....	....

*Column 1—Long Beach, Seal Beach and Huntington Beach crudes, 14 to 32 degrees, inclusive; Richfield and Fullerton, 14 to 30 degrees; Torrance and Inglewood, 14 to 28 degrees; Dominguez, 24 to 42 degrees. Rosecrans crude ranges from 14 to 42 degrees, but only Union Oil Co. posts below 24 degrees.

Column 2—Whittier crude, 14 to 22 degrees; Montebello, 14 to 30 degrees.

Column 3—Kern River, Newhall and McKittrick, 14 to 19 degrees; Midway-Sunset, Buena Vista and Elk Hills, 14 to 32 degrees; Lost Hills and Belridge, 14 to 34 degrees.

Column 8—Salt Lake, 14 to 19 degrees, inclusive; Santa Maria, 14 to 30 degrees; Ventura and Orcutt, 14 to 39 degrees. Posted only by Union Oil Co.

CRUDE OIL GRAVITY TABLE

Gravity—	[1] Okla., Kans., N. & C. Tex., La.-Ark.	[2] Smackover, Ark.	[3] Stephens, Ark.	[4] Gray County (Texas Panhandle)	[5] Crane, Upton, Pecos, Crockett Counties (West Texas)	[6] Salt Creek, Wyo.	[7] Grade B & Light Crude (G. Coast)	[8] Somerset (South Central Texas)
Below 24	....	.85	....	....	....	....	....	....
24 and above	....	1.00	....	....	....	....	....	....
Below 25	....	....	....	....	....	....	1.15	....
25 to 25.9	....	....	....	....	....	....	1.17	....
Below 26	....	....	....	....	.60	....	....	....
26 to 26.9	....	....	....	....	.60	....	1.19	....
27 to 27.9	....	....	....	....	.60	....	1.21	....
Below 28	(*)	....	1.00	....	....	....	....	....
28 to 28.9	1.12	....	1.02	.80	.60	....	1.23	....
29 to 29.9	1.14	....	1.04	.82	.60	1.14	1.25	....
30 to 30.9	1.16	....	1.06	.84	.60	1.16	1.27	....
31 to 31.9	1.18	....	1.08	.86	.60	1.18	1.29	....
32 to 32.9	1.20	....	1.10	.88	.60	1.20	1.31	1.05
33 to 33.9	1.22	....	....	.90	.60	1.22	1.33	1.07
34 to 34.9	1.24	....	....	.92	.60	1.24	1.35	1.09
35 to 35.9	1.26	....	....	.94	.60	1.26	1.37	1.11
36 to 36.9	1.28	....	....	.96	.60	1.28	....	1.13
37 to 37.9	1.30	....	....	.98	....	1.30	....	1.15
38 to 38.9	1.32	....	....	1.00	....	....	....	1.17
39 to 39.9	1.34	....	....	1.02	....	....	....	....
40 to 40.9	1.36	....	....	1.04	....	....	....	....
41 to 41.9	1.38	....	....	1.06	....	....	....	....
42 to 42.9	1.40	....	....	1.08	....	....	....	....
43 to 43.9	1.42	....	....	1.10	....	....	....	....
44 to 44.9	1.44	....	....	1.12	....	....	....	....
45 to 45.9	1.46	....	....	....	....	....	....	....
46 to 46.9	1.48	....	....	....	....	....	....	....
47 to 47.9	1.50	....	....	....	....	....	....	....
48 to 48.9	1.52	....	....	....	....	....	....	....
49 to 49.9	1.54	....	....	....	....	....	....	....
50 to 50.9	1.56	....	....	....	....	....	....	....
51 to 51.9	1.58	....	....	....	....	....	....	....
52 and above	1.60	....	....	....	....	....	....	....

Column 1—Magnolia Petroleum Co. posted new schedule September 14, making price below 30 gravity $1.05 per barrel, with 2 cents increase per degree higher in gravity, taking 30-30.9 gravity at $1.16 as basis, with a top price of $1.60 for 52 and above.

Oklahoma—Prairie Oil & Gas Co., Sinclair Oil & Gas Co., Gypsy Oil Co., March 12; Carter Oil Co., The Texas Company, March 14.

North Central Texas—[Including Ranger, Mexia, Powell, Richland, Wortham, Lytton Springs (Southwest Texas), Iatan and Panola (Magnolia only), Currie, Nocona, Moran and Corsicana light]; Texas, Prairie, Sinclair and Gulf, March 12; The Texas Company, Humble Oil & Refining Co., March 14.

Kansas—Prairie, Sinclair, March 12; Carter, Texas, March 14.

Arkansas and North Louisiana—[Caddo, Bull Bayou, Crichton, De Soto, Haynesville, Homer and El Dorado only]; Standard Oil Co. of Louisiana, March 14; The Texas Company, March 14; Magnolia Petroleum Co., Pine Island, Haynesville and Bull Bayou, El Dorado, Gulf Pipe Line Co., March 14.

Column 2—November 19, Louisiana Oil & Refining Co. On November 21, Standard Oil Co. of Louisiana, Magnolia Petroleum Co., Gulf Refining Co., and Atlantic Producing Co.

Column 3—Atlantic Oil Producing Co., March 14.

Column 4—Humble Oil & Refining Co. and Gulf Pipe Line Co., March 14. On August 23 Magnolia Petroleum Co. posted flat 75 cents.

Column 5—Humble Oil & Refining Co., August 23; Kay County Gas Co., Magnolia Petroleum Co., and Gulf Pipe Line Co., August 24.

Column 6—Midwest Refining Co., March 12. All crude over 37 gravity, $1.30 per barrel.

Column 7—Humble Oil & Refining Co. and other major buyers (schedule ends "35 and above"), March 14, with exception of Magnolia Petroleum Co., which stops at 31 degrees gravity. Sun Pipe Line Co. posts 2 cents differential for each degree above 35 gravity and $1.47 for 40 gravity and above.

Column 8—Grayburg Pipe Line Co. and Pioneer Oil & Refining Co., April 7.

*Prices for crude below 28 gravity; Oklahoma, Kansas and Texas, Magnolia Petroleum Co., $1.10, March 12; Arkansas, North Louisiana, March 14. Other companies, 2 cents less for each degree, with exception of Humble Oil & Refining Co., which pays 90 cents for crude below 25 degrees gravity, effective November 16.

CRUDE OIL PRICES

OKLAHOMA, KANSAS, NORTH AND EAST CENTRAL TEXAS

*Corsicana heavy (March 14, 1927).....$1.00
Other fields.....See gravity table

*Posted by Magnolia Petroleum Co.

TEXAS PANHANDLE

*Carson County.....$ .75
*Hutchinson County.....75
*Wheeler County.....75
Gray County.....See gravity table

*Humble Oil & Refining Co.
Magnolia Petroleum Co., Gulf Pipe Line Co., and Kay County Gas Co., August 23.

*Iatan.....Same as North Texas
Crane-Upton-Crockett.....See gravity table
†Glasscock.....$ .80

*Includes Howard County and Westbrook Fields. Kay County Gas Co. pays $1.05 for Howard County crude, effective May 21.
†Magnolia Petroleum Co., Oct. 24.

ARKANSAS-NORTH LOUISIANA

Cotton Valley (Dec. 2).....$ .85
Bellevue (Feb. 24, 1927).....1.20
Urania (Nov. 15, 1927).....75
East El Dorado (Sept. 20).....90
Other fields.....See gravity table

Note—Cotton Valley and Bellevue, Standard Oil Co. of Louisiana, Louisiana Oil Refining Co., Gulf Refining Co. and Magnolia Petroleum Co.; Urania, Louisiana Oil Refining Corp.; East El Dorado Magnolia Petroleum Co., Gulf Refining Co.

GULF COAST

(Goose Creek, Hull, Liberty, West Columbia, Orange, Boling, Sour Lake, Humble, High Island, Pierce Junction and Spindletop.)
‡Grade A (March 14).....$1.20
Grade B.....See gravity table
*Jennings, La. (March 14).....$1.05
†Saratoga, Batson, Dayton (March 14, 1927).....$1.20
§Markham (March 14).....1.00

*Gulf Pipe Line Co. †Sun Pipe Line Co. ‡Humble Oil & Refining Co. and other major buyers. §The Texas Company.

SOUTH CENTRAL AND SOUTHWESTERN TEXAS

*Luling (May 5).....$1.00
†Mirando (March 14).....1.00
Rockdale-Minerva (April 15):
Below 38 gravity.....1.25
38-38.9 gravity.....1.27
39-39.9 gravity.....1.29
40 and above.....1.31
*Thrall.....
Callihan (May 15).....1.75
Lytton Springs (Lockhart) See gravity table
Somerset.....See gravity table

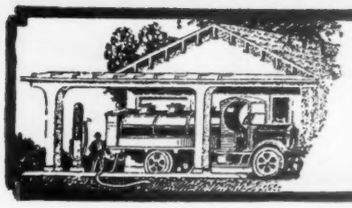
*Posted by Magnolia Petroleum Co. Thrall prices same as North Central Texas less 19½ cents per cwt. freight.
†Magnolia Petroleum Co., Humble Oil & Refining Co., Crown Central Pipe Line Co.

ROCKY MOUNTAIN STATES

Ohio Oil Co.-Midwest Refining Co.
(Effective March 14)

Rock Creek, Wyo (March 12).....$1.25
Salt Creek.....See gravity table
Big Muddy (March 12).....$1.25
Mule Creek (May 1).....1.10
Grass Creek, heavy.....1.30
Grass Creek, light.....1.32
Elk Basin (March 12).....1.32
Lance Creek (March 12).....1.32
Poison Spider.....1.00
Notches......65
Rex Lake (February 22).....1.10
Osage.....1.32
Lost Soldier (contract)......95
Greybull-Torchlight.....1.32
Hamilton Dome......85
Cat Creek (Mont.).....1.32

(Continued on Page 134)



TANK WAGON MARKETS

Tank wagon quotations for gasoline and kerosene in United States as furnished by the larger marketing concerns Jan. 10.

ALL TANK WAGON AND SERVICE STATION QUOTATIONS INCLUDE TAXES

STANDARD OIL CO. (INDIANA)

	Gasoline			Kero.
	Tank wagon	Service station	Incl'd's tax of	tank wagon
Chicago dist.	16.0	18 0	2 0	12 0
Decatur, Ill.	13 5	15 5	2.0	12.1
E. St. Louis	15 1	17 35	2 0	11 2
Joliet	16.4	18 4	2 0	12.3
Peoria	12.0	12.0	2.0	12.1
Quincy	16 2	18 2	2.0	11 9
Davenport, Ia.	15 5	17.5	3.0	12 3
Des Moines	15.9	17.9	3.0	12.3
Keokuk	17 5	19.5	3.0	12 3
Sioux City	17.1	19.1	3.0	11 9
Duluth, Minn.	15 5	17.5	2.0	12.9
Minneapolis	14 0	14.0	2 0	12 9
Mankato	14.1	16 1	2 0	12 7
LaCross, Wis.	17.2	19 2	3 0	13.0
Milwaukee	16.1	18 1	2.0	11 9
Madison	16.3	18 3	2.0	12.1
Detroit, Mich.	15 8	17.8	3.0	13 7
Grand Rapids	14 0	16.0	3.0	13 6
Saginaw	17 0	19.0	3 0	13 8
Evansville, Ind.	17 0	19 0	3 0	13 0
Ft. Wayne	16.4	17.4	3.0	13.4
Indianapolis	14 2	15 2	3.0	12.2
South Bend	17 4	17.4	3 0	13.4
Fargo, N. D.	15 0	17 0	2 0	14 9
Huron, S. D.	19 5	21 5	4.0	13 9
Sioux Falls	16.0	18.0	4.0	13.4
*K. C., Mo.	14 9	16.9	3 0	10 6
*Springfield	16 8	18 8	3 0	11 5
*St. Louis	15 6	17 9	2.5	11.3
*St. Joseph	14 5	16 5	3.0	11.2
Wichita, Kans.	12.8	12.8	2.0	10.8
Bartlesville, Ok.	15 8	17.8	3.0	10 8

NAPHTHAS

	Tank wagon	Tank car
Oleum spirits	14.7	9 5
V. M. & P. naphtha	16 2	11.0
Cleaner's naphtha	18.0	12 0
Stanisol	19 0	12 5

Tank wagon prices f.o.b. Chicago; tank car prices f.o.b. Whiting.

STANOLIND FURNACE OIL IN CHICAGO

Less than 100 gallons	9 0
100 to 799 gallons	8.0
800 or more gallons	7 5

Note—Outside Chicago furnace oil discount of 1 cent per gallon is given on deliveries of 100 to 349 gallons and 1½ cents on deliveries of 350 gallons or more.

Tank wagon prices of gasoline subject to discount of 1 cent a gallon on dumps of 50 gallons or more throughout territory except Chicago district where discount applies only to dumps of 100 gallons. Kerosene subject to 1 cent discount on dumps of 50 gallons or more.

Outside the Chicago district, the following quantity discount schedule is in effect on monthly tank wagon deliveries of gasoline; 6,000 gallons or more, 1½ cents; 10,000 gallons or more, 2 cents; 15,000 gallons or more, 3 cents. These discounts include the 1 cent allowed on dumps of 50 gallons or more at one delivery.

Within the Chicago district, the following quantity discount schedule is in effect on tank wagon deliveries of gasoline; 750 to 2,000 gallons, one-half cent; 2,000 to 3,000 gallons, three-fourths cent; 3,000 to 6,000 gallons, 1 cent; 6,000 to 10,000 gallons, 1½ cents; 10,000 to 15,000 gallons, 2 cents; 15,000 gallons or more, 3 cents. These discounts are in addition to the special discount of 1 cent on dumps of 100 gallons or more at one delivery.

If the quantity bought during the year is equal to or exceeds 12 times the agreed monthly quantity, the discount is paid or credited on the entire quantity at the close of the term less the monthly payments made during the year.

*State tax 2 cents; remainder city tax.

OHIO

Standard Oil Co. (Ohio)

	Gasoline			Kero.
	Tank wagon	Service station	Incl'd's tax of	tank wagon
All Ohio points	17.0	19.0	3.0	14.5

SOUTHWESTERN DISTRICT

Magnolia Petroleum Co.*

	Gasoline			Kero.
	Tank wagon	Service station	Incl'd's tax of	tank wagon
Dallas, Tex.	14.0	17.0	3 0	11 0
Fort Worth	14.0	16 0	3.0	10 0
Houston	13 0	15 0	3.0	15 0
San Antonio	13.0	15.0	3.0	10 0
El Paso	14 0	15 0	3.0	16.0
Texarkana	14.0	15.0	3.0	12.0
Muskogee, Ok.	15.0	18 0	3 0	10.0
Okla. City	13.0	14 0	3.0	10 0
Tulsa	13.0	14 0	3.0	10 0
Ft. Smith, Ark.	14 0	17.0	5.0	12 0
Little Rock	16.0	16.0	5.0	11.0

*The following is the schedule of discounts on quantity gasoline sales adopted by the Magnolia Petroleum Co. in Oklahoma: Over 750 gallons a month, one-half cent; over 2,000 gallons, three-quarters cent; over 3,000 gallons, 1 cent; over 4,500 gallons, 1¼ cents; over 6,000 gallons, 1½ cents; over 8,000 gallons, 1¾ cents; over 10,000 gallons, 2 cents. If the quantity bought during the year is 12 times the monthly agreed purchases, the discount will be paid or credited on the entire quantity for the year less any monthly purchases.

The schedule on service station deliveries is: Over 200 gallons a month, 1 cent; over 300 gallons a month, 1¼ cents; over 400 gallons, 1½ cents; over 500 gallons a month, 1¾ cents; over 600 gallons, 2 cents. The same rule applies for annual purchases in the tank wagon discounts.

CENTRAL SOUTH DISTRICT

Standard Oil Co. (Louisiana)

	Gasoline			Kero.
	Tank wagon	Service station	Incl'd's tax of	tank wagon
*N. Orleans, La.	15.5	17 5	3 0	14 0
Baton Rouge	14 0	17 0	2.0	12 5
Alexandria	15 0	18.0	2 0	14 0
LaFayette	15 9	18.0	2.0	13 5
Lake Charles	15 5	18 5	2.0	14.0
Shreveport	15 5	18 5	2.0	13 0
Kn'xville, T'nn.	19.5	22 5	3 0	15 0
Memphis	15.0	16 5	3 0	14.0
Chattanooga	19.5	22 5	3 0	15 0
Nashville	18 0	21 0	3.0	15.6
Bristol	19 0	22 0	3.0	14 0
Lit. Rock, Ark.	16.0	16.0	5.0	12.0

*Tax of 3 cents includes city tax of 1 cent.
*Louisiana kerosene prices include 1-cent state tax and 1-cent parish tax.

SOUTHERN DISTRICT

Standard Oil Co. (Kentucky)

	Gasoline			Kero.
	Tank wagon	Service station	Incl'd's tax of	tank wagon
Atlanta, Ga.	17.0	19.0	4.0	14.0
Augusta	19.0	22 0	4 0	16 5
Macon	16.0	19.0	4.0	13.5
Savannah	17 0	19 0	4 0	14.5
Birm'h'm, Ala.	18.0	21.0	4.0	14.5
Mobile	17.0	20.0	4.0	14.0
Montgomery	16.0	19.0	5.0	15.5
Clarks'le, Miss.	17.0	20.0	4.0	11.5
Jackson	17.0	20.0	4.0	11.5
Natchez	16.5	19 5	4.0	14 0
Gulfport	18 5	21 5	6.0	14 0
Vicksburg	16 5	19.5	4.0	14 0
Jack'ville, Fla.	18.0	21.0	5.0	11.5
Miami	20.0	23.0	5.0	14.5
Pensacola	19.0	22.0	5.0	13.0
Tampa	18.0	21.0	5.0	13.0
Lexington, Ky.	18 0	21.0	5.0	15 5
Covington	19.0	22 0	5 0	15.5
Louisville	18.0	21.0	5.0	15.0

In addition to the state tax of 4 cents on gasoline, Montgomery has city tax of 1 cent on gasoline. Kerosene prices in Georgia includes 1 cent tax. In Florida, an inspection fee of 0.125 cent; in Alabama, an inspection fee of one-half cent on kerosene only. Pensacola tax includes 1 cent city levy. Gulfport tax includes privilege tax of 2 cents in addition to state tax.

PENNSYLVANIA-DELAWARE AND PART NEW ENGLAND

Atlantic Refining Co.

	Gasoline			Kero.
	Tank wagon	Service station	Incl'd's tax of	tank wagon
Pittsburgh, Pa.	16 0	*22 0	...	14 0
Philadelphia	15.0	*21.0	...	14.0
Scranton	16 0	*22.0	...	14 0
Allentown	16 0	*22.0	...	14 0
Altoona	16 0	*22 0	...	14.0
Erie	12 0	*18.0	...	14 0
Dover, Del.	19 0	22 0	3.0	14 0
Wilmington	19.0	22.0	3.0	14.0
Spring'd, Mass.	18 0	18 0	...	15.0
Worchester	17 0	17 0	...	15 0
Boston	17 0	17.0	...	15 0
Providence, R.I.	19.0	19 0	3.0	15 0
Hartford, Conn.	17.0	20 0	3 0	15.0
New Haven	20.0	20.0	3.0	15.0

*Includes tax of 3.0 cents. Pennsylvania tax is collected by the dealer and paid by him direct to the state.

NEW YORK AND PART OF NEW ENGLAND DISTRICT

Standard Oil Co. (New York)

	Gasoline			Kero.
	Tank wagon	Service station	Incl'd's tax of	tank wagon
Albany, N. Y.	17.0	19.0	...	15.0
*New York	17 0	19.0	...	15.0
Buffalo	17.0	19.0	...	14.0
Rochester	13 0	16.0	...	14.0
Syracuse	17.0	19.0	...	15.0
Boston, Mass.	17 0	19.0	...	15.0
Augusta, Me.	21 0	23 0	4.0	15.0
M'nch't'r, N.H.	19.0	23.0	4.0	15.0
Burlington, Vt.	20.0	22.0	3.0	15.0

*Price in steel barrels.

PACIFIC COAST DISTRICT

Standard Oil Co. (California)

	Gasoline			Kero.
	Tank wagon	Service station	Incl'd's tax of	tank wagon
San Francisco	17.0	21.0	3.0	15.5
Pueblo	18.0	18.0	3.0	15.5
Los Angeles	16.5	20.5	3.0	15.5
Reno, Nev.	22 0	26.0	4.0	19.0
Portland, Ore.	17.5	21.5	3.0	16.5
Seattle, Wash.	16.5	20.5	3.0	16.5
Tacoma	16.5	20.5	3.0	16.5
Spokane	20.5	24.5	3.0	20.5
Phoenix, Ariz.	23.0	27.0	4.0	20.5

ATLANTIC COAST DISTRICT

Standard Oil Co. (New Jersey)

	Gasoline			Kero.
	Tank wagon	Service station	Incl'd's tax of	tank wagon
Atlantic City	18.0	20.0	2 0	14.0
Newark, N. J.	18 0	20.0	2.0	14.0
Annapolis, Md.	20.0	23 0	4.0	12.0
Baltimore	20.0	23.0	4.0	10 0
Cumberland	20.0	23.0	4.0	14.0
Washington	18.0	21.0	2.0	12.0
Danville, Va.	20.5	....	4.5	14.0
Norfolk	20.5	23.5	4.5	12.0
Petersburg	20.5	23.5	4.5	14.0
Roanoke	20.5	23.5	4.5	14.0
Richmond	18.5	21.5	4.5	14.0
Ch'rslt'n, W.Va.	20.0	23.0	4.0	14.0
Keyser	20 0	....	4.0	14.0
Parkersburg	17.0	20.0	4.0	14.0
Wheeling	20 0	23.0	4.0	14.0
Charlotte, N. C.	20 0	23.0	4.0	14.0
Hickory	20.0	23 0	4.0	14.0
Mt. Airy	20 0	23 0	4.0	14.0
Salisbury	20.0	23.0	4.0	14.0
Charlst'n, S. C.	20.0	23.0	5.0	14.0
Columbia	20.0	20.0	5.0	14.0

NEBRASKA

Standard Oil Co. (Nebraska)

	Gasoline			Kero.
	Tank wagon	Service station	Incl'd's tax of	tank wagon
Omaha	14.25	16 26	2 0	12.25
McCook	14 75	14 75	2 0	11 50
Norfolk	16 75	18 75	2 0	12.75
N. Platte	17.75	19 75	2.0	13.50
Scottsbluff	17.25	19.25	2.0	13.00

ROCKY MOUNTAIN DISTRICT

Continental Oil Co.

	Gasoline			Kero.
	Tank wagon	Service station	Incl'd's tax of	tank wagon
Denver, Colo.	16.0	18.0	3.0	12.5
Pueblo	16.0	18.0	3.0	14.5
Grand Jnctn.	20 5	22.5	3 0	15.9
Casper, Wyo.	17.0	19 0	3.0	13 0
Cheyenne	18.0	20.0	3.0	14.5
Butte, Mont.	22.0	22.0	3.0	19 9
Helena	22.5	24.5	3.0	19.6
Salt L'ke, Utah	20.0	21.0	3.5	17.0
Boise, Idaho	23.5	25.5	4.0	19.0
Twin Falls	23.5	25.5	4.0	19.0
Albu'que, N. M.	21.0	24.0	5.0	17.0

TANK WAGON CHANGES

December 31—Standard Oil Co. of Indiana increased the gasoline tank wagon and station prices 1 cent in Sioux Falls, S. Dak., to 16 cents and 18 cents.

January 3—Magnolia Petroleum Co. decreased the kerosene price to 10 cents at Fort Smith, Ark.

AMERICANS TO REOPEN MEXICAN NEGOTIATIONS

NEW YORK, Jan. 9.—American oil companies with interests in Mexico are sending representatives to Mexico City with a view to reopening negotiations looking toward a solution of the difficulties over the interpretation of the Mexican oil laws. This is the result of the recent action by President Calles in proposing an amendment to the law which is regarded as indicating a favorable change in attitude on his part.

GULF COAST NEUTRALS IN BETTER POSITION

HOUSTON, Tex., Jan. 9.—Except for the higher viscosity oils principally 750 viscosity which have been slow in demand due to cold weather Gulf Coast neutrals were in a better position the past week than at any other time in months. The elimination of two sources of supply through refinery shutdowns and a seasonal increase in volume of business are being felt by remaining sellers to such an extent that sales Monday trended toward prices a quarter to a half cent higher than those a week ago. This was reflected mainly, in the 300 and 500 viscosity pale and pale filtered oils the movement of which at present is taxing the output of some plants.

One sale of 500 viscosity 3½ color pale oil was reported as high as 14 cents although the prevailing market quotations ranged from 12 to 13 cents. Competition of outside oils still offers considerable uncertainty in the market structure but despite this a number of important sales are being made at prices above prevailing spot markets. Gas oil continued fairly steady at 4¼ to 4½ cents with little of this material quoted on the open market. Fuel oil was unchanged.

SEVEN GAS COMPANIES IN MERGER AGREEMENT

PITTSBURGH, Pa., Jan. 7.—That the Arkansas Natural Gas Co. and six other fuel concerns, with capital ranging from $20,000,000 to $80,000,000, have arranged a tentative merger agreement is the understanding in financial circles here.

Besides the Arkansas company the concerns included in the merger will be the Empire Gas & Fuel Co., an important subsidiary of the Cities Service Co.; the Southwestern Gas & Electric Co., an Insull company controlled by the Middle West Utilities interests; the Arkansas Fuel Oil Co., the Reserve Natural Gas Co., and the Natural Gas & Fuel Corp.

It was stated here today that the Southwestern Gas & Electric Co., which serves 79 communities in Texas, Louisiana and Mississippi, has been purchased by the interests in the merger.

WINKLER PIPE LINES

FORT WORTH, Tex., Jan. 10.—Independent Oil & Gas Co.'s 8-inch line from the Hendricks Pool in Winkler County, to the company's 75-car loading rack at Pyote will be running oil January 12. Atlantic Oil Production Co.'s 10-inch line from Hendricks to Midland is more than 50 per cent complete and is expected to be completed January 25.

CRUDE OIL PRICES

(Continued from Page 133)

Sunburst (Mont.)	1.35
Artesia (March 12)	1.00
Hogback (N. Mex.) (March 14)	1.30

Note: Salt Creek, Osage, Cat Creek, Greybull and Hogback posted by Midwest Refining Co., and the remainder by the Ohio Oil Co. Both companies post Grass Creek Light and Elk Basin.

EASTERN STATES

Joseph Seep Purchasing Agency
(Effective December 17)

Penna Grade Oil in New York Transit Line (New York)	$2.00
Bradford District Oil in National Transit Lines (Pennsylvania)	2.00
Penna Grade Oil in National Transit Lines (Pennsylvania)	2.00
Penna Crude Oil in Southwest Pennsylvania Lines (West Virginia)	2.05
Penna Grade Oil in Eureka Pipe Line lines (Pennsylvania)	2.00
Penna Grade Oil in Buckeye Pipe Line lines (Ohio)	2.00
Cabell Grade Oil in Eureka Pipe Line lines (West Virginia) (December 4)	1.50
Corning 35-cent grade oil in Buckeye Pipe Line Co.'s line (December 19)	1.45
Corning 25-cent grade oil in Buckeye Pipe Line Co.'s lines (December 19)	1.35
Somerset Oil in Cumberland Pipe Line lines (Kentucky) (December 4)	1.00
Ragland Grade Oil in Cumberland Pipe Line lines (Kentucky) (August 1)	.80
Keister (Pennsylvania) (August 1)	1.10

MIDDLE WESTERN STATES

Ohio Oil Co.
(Effective March 14)

Lima	$1.71
Wooster	1.57
Illinois	1.60
Indiana	1.48
Princeton	1.40
Plymouth	1.33
Waterloo (Nov. 17, 1926)	1.35
*Western Kentucky	1.33
**Saginaw, Mich., Saginaw Sand (May 27)	2.05
**Saginaw, Mich., Berea Sand (May 27)	1.95
†Cumberland, Clay, Barren, Clinton and Monroe Counties, Kentucky (March 16)	1.50
‡Oil in lines of Stoll Oil Refining Co. in Oil City, Ky. (March 16, 1927)	1.50
§Oil Springs (Canada)	2.13
§Petrolia (Canada)	2.11

*Posted by Ohio Oil Co.
†Posted by Paragon Development Co.
‡Posted by Stoll Oil Refining Co.
§Posted by Imperial Oil Co., Ltd.
**Posted by Sun Oil Co.

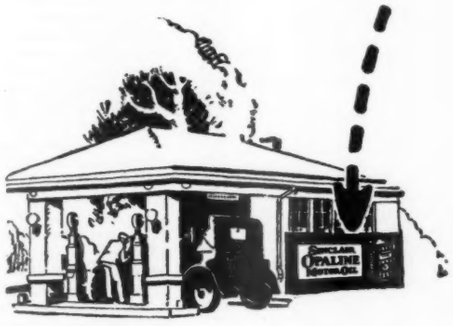
MEXICAN CRUDE

Note—Due to the fact that the exportation of Tuxpam light crude oil has become a negligible factor, prices will no longer be published.

*Panuco heavy (f.o.b. Mex. ports)	$1.15

*17.496 cents tax.

This Sign will tell motorists you sell correct lubrication



THIS sign *always* identifies the station along-the-highway where a motorist can buy *the Oil* which will give him correct lubrication.

The motorist is learning that where he sees this sign he gets the *right grade* of motor oil to seal the power in his engine at every degree of wear.

Only Opaline Motor Oil is recommended on the basis of engine-wear—*as indicated by the mileage on the speedometer!* And only Opaline Dealers have this sound method for increasing gallonage.

Sinclair supplies the Dealer with several grades of Opaline, and with the Sinclair Recommendation Index which tells when each grade should be sold. The authorized Opaline Dealer asks the motorist his mileage, the Index tells the grade—the motorist drives away with the kind of lubrication which brings him back for more!

May we tell you about this successful method of selling *correct lubrication* with the full line of Opaline Motor Oils?

SINCLAIR REFINING COMPANY, INC.

Also Makers of Sinclair Gasoline and H-C Gasoline

45 NASSAU STREET, NEW YORK

Atlanta Boston Chicago Houston Kansas City

Oil Securities Were Slow and Steady

Under Accumulation Which Is Expected to Continue, Barring Unforeseen Developments. Dividend Records

The oil issues were subjected to slow and steady purchasing during the past week, and it is generally believed they are under an accumulation which will prevail for some time unless some unfavorable developments in the industry are recorded. The feature of the market was Independent Oil & Gas Co. which advanced on Monday, selling at 28¼ with good demand.

H. F. Wilcox Oil & Gas Co. directors declared the regular quarterly dividend of 50 cents per share when they met on Monday of this week.

E. L. Doheny Active

Besides heading the Pan American Western Petroleum Co., Edward L. Doheny and his associates have become active in other petroleum companies on the Pacific Coast in recent weeks. The latest move of the Doheny interests, following the formation of an oil well equipment unit, is the application for a permit to reorganize the Pacific Petroleum Co., capitalized at $25,000,000. It is expected that the new concern will provide a vehicle for marketing expansion in the Pacific Northwest and northern California of the Pan American Western concern.

The requested permit includes issuance of 1,000,000 shares of $25 par value preferred stock and 5,000,000 shares of no-par value common. E. L. Doheny is listed in the application, which was made to the California Corporation Office, as chairman of the board, and E. L. Doheny, Jr., vice president, while Frank R. Seaver, until recently vice president and general manager of the Huasteca Petroleum Co., subsidiary of the Pan American Petroleum & Transport Co., will be president. The Doheny interests now cover the marketing field on the coast only as far north as Santa Barbara.

Barnsdall Corp.

The Barnsdall Corp. has declared a dividend of 2½ per cent, payable in stock, the same paid in the previous quarter. Prior to that the quarterly disbursement of 62½ cents a share in cash, having been realized from 50 cents in March, 1927. The dividend is payable February 6 to stockholders of record January 16.

The company issued the following statement: "The question of a cash dividend was discussed. From statements submitted the company has earned approximately $3.70 a share net after all charges, including reserves for depletion, depreciation and taxes for the year, and its cash position would warrant the payment of a cash dividend at this time. However, in view of the still somewhat unsettled condition in the oil industry generally, it was decided that conservatism demanded the payment of the present dividend in stock."

Beacon Oil Financing

The Beacon Oil Co. has sold privately 210,000 shares of its treasury common stock at $15 a share, net to the company. There will be no public offering of stock. On December 5, last, a special meeting of shareholders increased authorized common stock by 500,000 shares to 1,500,000 shares.

Lion Oil

The statement of the Lion Oil Refining Co. as of September 30, 1927, shows total assets of $11,091,453, compared with $10,862,992 on December 31, 1926, and capital stock and surplus (represented by 200,000 no par value shares) $6,571,199, against $5,842,094. Current assets on September 30, 1927, were $1,631,372 and current liabilities $480,755 as compared with $1,680,556 and $891,757 respectively, on December 31, 1926.

The balance sheet of the Lion Oil Refining Co. as of September 30, 1927, compares as follows:

Assets	1927 Sept. 30.	1926 Dec. 31,
Prop. plant, tank cars, etc.	$9,420,789	$9,144,215
Cash	240,673	255,162
Accts. & notes receiv.	395,508	418,367
Inventories	1,031,191	1,007,027
Prepaid expenses	38,292	38,221
Total	$11,091,453	$10,862,992
Liabilities		
*Capital stock and surplus	$ 6,571,199	$ 5,842,094
Gold bonds	525,000	525,000
Rush money, obligations, etc.		226,000
Notes & accts. payable	292,472	374,755
Dividends payable		150,000
Res. for accruals	188,283	367,002
Def. liabilities	26,585	
Depr. & depletion res.	3,487,914	3,378,141
Total	$11,091,453	$10,862,992

*Represented by 200,000 no par shares.

Dividend Changes

Record of oil company dividends during 1927 shows 23 different companies reduced or passed regular quarterly distributions or eliminated extra payments.

These changes were the result of overproduction of crude oil which brought sharp price declines in crude and refined oil products. Furthermore, oil companies issued $440,000,000 of new securities, much of which was due to poor trade conditions and expansion activities of big units.

With 10 months of low prices, and refined markets at the year end the lowest for 1927, most oil units suffered sharp contraction in earning power. This was reflected in quarterly reports of some 25 companies and will be further confirmed in 1927 annual reports.

In oil, as in other things, there are exceptions to the rule. This was chiefly true of specialty companies, benefiting by lower raw material costs, whose products do not follow general price trend; also of transportation companies, particularly pipe lines, which had much heavier business due to overproduction and whose tariffs remain unchanged.

Among specialty companies Vacuum Oil again paid $5 a share in regular and extra dividends. Chesbrough Manufacturing raised its regular rate and continued the extra, so that it paid $5.50 a share this year against $4.50 in 1926.

Among pipe lines, Indiana Pipe paid $15 special for a total of $21 a share against $7 in 1926. Prairie Pipe Line raised the regular rate from $8 to $10 a share; Southwest Pennsylvania Pipe Line paid $6 a share against $4; Cumberland Pipe Line distributed $33 a share special out of funds accruing from sale of securities but reduced regular rate from $10 to $8 a share. Southern Pipe Line paid $2 a share against $1 in 1926 and completed, by payment of $10 a share, reduction of capital from $100 to $50 a share. Atlantic Refining resumed dividends, $1 quarterly, after three years' lapse.

Standard Oil Co. of New Jersey in 1926 effected recapitalization through retiring $200,000,000 preferred by issuing $120,000,000 debentures and additional common. In conjunction with this it started an extra quarterly dividend of 12½ cents a share in the final quarter, 1926; this was continued so that New Jersey in 1927 paid $1.50 a share against $1.12½ in 1926.

Eight large companies passed their regular payments. These were Marland Oil, Mid-Continent Petroleum, New York Transit, Pan American Petroleum & Transport, Pan American Western, Prairie Oil & Gas, Simms Petroleum and Tide Water Associated Oil.

Barnsdall Corp. changed its payment from cash to stock while four others, Cumberland Pipe Line, California Petroleum, Tide Water Oil and White Eagle Oil reduced their quarterly dividend rate.

Ten companies eliminated or reduced extra disbursements while leaving their regular rates unchanged. These were Associated Oil, Buckeye Pipe Line, Ohio Oil, National Transit, Pure Oil, Richfield Oil, Tide Water Oil, Shell Union Oil, Standard Oil of California and Union Oil of California.

Despite smaller dividends of some old Standard Oil units and because of larger capital stock issue and special dividends by others, cash distributions by old Standard Oil group made a new high of $213,760,695 during 1927, about $13,400,000 larger than in 1926.

Northern Pipe Line Assets

Directors of Northern Pipe Line Co. have addressed a letter to stockholders in which they make answer to a recent letter mailed by "Stockholders' Protective Committee," in which was sought a distribution to stockholders of what this committee said was excess liquid assets.

In their letter, the directors state that it is essential for a pipe line company to hold much larger amount of liquid assets than is usually required in mercantile activities, in order to maintain its existing position and to provide for any future developments.

"As a matter of fact," the directors say, "negotiations which have not advanced far enough to be further disclosed are now being conducted by your officers looking to the further development of your company."

The directors state that the committee's letter is in error regarding the physical pipe line situation in the territory of Northern Pipe Line Co. They say there are competitive lines in the territory and there are directions in which the pipe lines could be and have been extended.

In closing the letter, directors say "the latest balance sheet of the company indicates that there is approximately $1,000,000 excess capitalization. It has been pointed out to the counsel for the committee that if it should develop within a reasonable period that this excess capital is not to be used in connection with pending negotiations for an expansion of the business, there will be a favorable case for its distribution to stockholders."

Directors also ask that stockholders continue supporting them and add that the management has already received proxies representing a substantial majority of the stock.

NEW YORK STOCK EXCHANGE—LIST OF ACTIVE STOCKS

Stocks—	Par	Clos. Quot. Jan.9	Clos. Quot. Dec.31	1927 High	1927 Low	1926 High	1926 Low	1925 High	1925 Low
Amerada Corp.	..	32½	31½	37⅛	27⅝	32⅞	24⅜	..	..
Atlantic Refining, com.	100	105½	107	131⅜	107	128⅝	97	117½	95½
Barnsdall "A"	25	25	25¼	35½	20¾	32¼	23½	33½	18⅝
California Petroleum, com.	25	25⅞	24⅝	32⅞	20	38¼	30⅞	34⅜	23⅜
Houston Oil	100	150	156¼	175⅜	60¼	75	50¼	85	50
Independent Oil & Gas	..	27⅜	25¼	32⅜	17⅝	34	20¼	41⅜	13½
Louisiana Oil	10	12⅛	10½	18⅛	10½	19⅝	12	23⅜	13⅜
Maracaibo	..	15⅝	16	22⅝	12	27⅜	18⅜	35½	20⅜
Marland	..	35⅝	35	58⅛	31	63⅜	41¼	60⅛	31⅝
Mid-Continent Petroleum		28⅝	29¼	39⅜	25½	41	25⅜	38	25⅜
National Supply	50	94	95½	95¾	76	84⅞	55½	71	54¾
O I Well Supply	25	36⅞	35⅞	44⅜	31¼	36	30	38	33⅜
Pan American, B	50	43⅜	43⅞	66⅜	45⅛	72⅜	56⅛	83⅞	59½
Pan American, Western B	..	20⅜	19⅝	37⅞	16¾	46	34	94⅜	37¼
Phillips Petroleum	..	41¼	40⅝	60¼	36½	54⅞	42¼	47⅛	47¼
Producers & Refiners	50	25	25	33⅞	16¾	26	11	32⅝	12½
Pure Oil, com.	..	26⅝	25⅞	33½	25	31	25⅜	33¾	32½
Royal Dutch, N. Y., sh.	13.40	48	47½	54½	44¼	57⅜	49⅜	57⅜	48¼
Shell Transport	10	41⅝	42½	49	41½	48⅞	42	49	30¾
Shell Union, com.	..	26¼	25½	31¾	24⅝	30⅞	24	28⅜	21⅝
Simms Petroleum	10	23⅞	23⅝	23⅞	14¼	25⅝	16½	28½	18¾
Sinclair Consolidated		20⅜	20⅞	22⅝	15⅛	24⅞	16⅜	24⅝	17
Skelly Oil	25	27	27¼	37⅝	24⅛	37⅛	27	32½	21¾
Standard of California	25	55½	55⅞	60⅝	50⅝	63½	54	67¼	52½
Standard of New Jersey, com.	25	40¼	39¾	41⅜	35⅛	46⅝	37½	47½	38⅝
Standard of New York	25	30⅞	31	34⅛	29¾	47¼	30⅝	48⅝	40
Sun Oil Co.	..	31½	‡34⅛	34⅞	30	41¼	30⅛	43⅞	38½
The Texas Company	25	54⅛	54	58	45	58	48	55	43¾
Texas Pacific Coal & Oil	10	14½	14½	18⅝	12	19½	12⅛	23¼	11
Tide Water Associated Oil	..	16½	17¼	19¼	15⅜	21	17	..	..
Transcontinental	..	8¾	8⅞	10⅜	3¾	5½	3	5⅝	3½
Union Oil of California	25	44½	43⅜	56½	39⅜	53⅜	37¼	43⅝	38½
Union Tank, com.	100	122	122¼	126	94	120⅜	84¼	‡134	118
White Eagle Oil & Refining	..	23½	21	27½	21⅜	29¾	25⅛	28¾	25⅝
Standard Oils									
Anglo-American Oil	£1	18½	*18½	21⅜	17⅛	19¾	16½	26¾	17½
Borne Scrymser	25	56	*57	69	49½	75	65	‡240	205
Buckeye Pipe Line	50	58½	*57	59	45	59½	42	72	63½
Chesebrough Manufacturing Co.	25	120	*115	126	76½	81⅛	63	74	48¼
Continental	10	22¼	21	22⅝	16¼	25⅞	10¼	31⅛	21⅞
Cumberland Pipe Line	100	91	*92	‡137	90	137	102	156	128
Eureka Pipe Line	100	63	*64	66	47	43¾	43	96	61¼
Galena Signal, com.	100	6	3⅜	13½	4½	32½	9⅞	68½	23½
Humble Oil & Refining Co.	25	66¾	67½	67¾	54	99⅝	52	99	40½
Illinois Pipe Line	100	180	*174	181½	123¾	144	131	154½	124
Imperial Oil	..	59⅝	58¼	64¾	37¾	39⅜	32½	39¼	27¼
Indiana Pipe Line	50	76	*75½	93	61	68	52¼	84	57⅛
International Petroleum Co.	10	37¼	36¾	36¾	28¼	35¼	28¾	25⅜	20¼
National Transit Co.	12.50	22	*20½	23¼	13¼	30⅝	27¼	25½	16⅜
New York Transit	100	39	*37½	42	31¼	61½	27¼	70	50
Northern Pipe Line	100	96	*92	96	70	80½	64	88	67½
Ohio Oil Co.	25	65¼	65⅝	66	52	67⅝	55⅝	75¼	60
Penn-Mex Fuel	25	38½	*37	36½	12	24¼	15	44	19
Prairie Oil & Gas	25	49	49	55½	45⅝	60¼	49	65½	45⅞
Prairie Pipe Line	100	185	185	189¼	132	137½	122½	129¾	105
Solar Refining Co.	100	176	*176	‡201½	178	212	184½	259	200
South Penn Oil	25	37	*28	41½	34½	50	30	‡197	139
Southwest Pa. Line	100	71	*72	78	55½	56	47½	84	50
Southern Pipe Line	50	20	*20	39	18½	27	34	‡103	63
Standard of Indiana	25	80⅛	78⅜	80¼	64⅜	70⅛	60½	70⅜	69¼
Standard of Kansas	25	16⅜	15	20⅞	15⅝	36⅛	16½	45	30
Standard of Kentucky	25	129⅜	124⅝	125½	111½	134⅝	107	137	114⅝
Standard of Nebraska	25	41½	41½	49½	43	51⅛	42	‡270	231
Standard of Ohio, com.	100	77½	79¼	81½	72	362	192½	369	338
Swan & Finch, com.	25	17½	*15½	21	14½	21	18	27	12
Vacuum Oil	25	141	139⅝	147	95⅛	109⅝	94⅛	109½	80⅛
Miscellaneous									
Gulf Oil Corp. of Pa.	25	114⅝	116	116	86⅛	95	82⅛	98¼	63⅛

*Bid, no sales. ‡Old stock. †New stock. §Ex-dividend.

Quotations furnished by W. J. Wollman & Co.

The Oil and Gas Journal's weekly average price of 20 representative petroleum stocks listed on the New York Stock Exchange was as follows:

Jan. 9	63.55	Dec. 3	62.06	Oct. 31	69.98
Dec. 31	62.09	Nov. 28	62.92	Oct. 24	60.45
Dec. 27	62.86	Nov. 21	63.66	Oct. 17	59.22
Dec. 19	63.24	Nov. 14	62.78	Oct. 10	59.20
Dec. 12	62.07	Nov. 7	61.80	Oct. 3	60.97

OKLAHOMA FIELDS

(Continued from Page 122)

others' No. 1 Tucker, SE cor. SW NW, Section 9-15-14, was completed for 33,750,000 feet of gas in sand 1,811-18 feet.

Muskogee County

Bryan & Emory moved a machine out for No. 1 Lowery, NW cor. SW NW SW, Section 9-15-15. J. L. Haner and others' machine is on the location for No. 1 Stidham, NW cor. SW SW, Section 9-15-18. A. A. Rollestone has a machine on location for No. 1 Hixon, C E half NE, Section 1-13-19.

W. R. Sommerville's No. 4 Warrior, CNL NE NE, Section 17-15-17, is a dry hole at 1,498 feet. H. E. Williams' No. 3 Sango, CWL NE NW, Section 17-15-17, was completed for 30 bbls. in sand 1,250-80 feet. J. W. Hale and others' No. 1 McDaniel, NW cor. SW SE, Section 6-14-19, is making 25 bbls. from sand 523-48 feet. W. R. Sommerville's No. 1 Carver, SW cor. SE NE, Section 4-13-19, is dry and abandoned at 1,620 feet

Pittsburg County

Quinton Spelter Co.'s No. 1 Featherstone, SW cor. NW NW, Section 21-7-17, is shut in for 2,000,000 feet of gas from sand 2,438-2,640 feet.

Pottawatomie County

Tidal Oil Co.'s No. 5 Watkins, SE cor. NW NW, Section 9-9-5, Earlsboro Pool, made 310 bbls. from Wilcox sand 4,270-84 feet. Twin State Oil Co.'s No. 4 Spangy, SW cor. NW SE, Section 19-7-4, Pearson Pool, flowed 645 bbls. from Hunton lime 3,755-3,844 feet.

Seminole County

Magnolia Petroleum Co. made location and is moving in the rig for No. 4 Rhoades, SE cor. NW SE, Section 12-8-6, Bowlegs Pool. Location has been made for No. 3 Cruse, SE cor., Section 2-7-6, Little River Pool. Sinclair Oil & Gas Co. has the rig on the ground for No. 1 Lack, NW cor., Section 12-7-6. Louisiana Oil Refining Co.'s No. 2 Hulwa, SE cor. SW NE, Section 7-5-8, Allen Pool, is rigging up rotary tools.

Magnolia Petroleum Co.'s No. 2 Edmundson, NW cor. SW SW, Section 3-9-5, Earlsboro Pool, was completed for 64 bbls. in Wilcox sand topped at 4,246 feet, drilled to 4,256 feet and plugged back 2 feet. Independent Oil & Gas Co.'s No. 5 Sullivan, SE cor. NE, Section 10-9-5, had Wilcox sand 4,351-65 feet and swabbed 114 bbls. Jarvis & Holm's No. 1 Buchner, SW cor. SE SE, Section 6-9-8, swabbed 30 bbls. from sand 3,240-75 feet. Indian Territory Illuminating Oil Co.'s No. 8 Fay, NW cor. NE SW, Section 13-8-6, swabbed 283 bbls. from Wilcox sand 4,195-4,209 feet. Tidal Oil Co.'s No. 4 Grayson, SE cor. NE NW, Section 13-8-6, Bowlegs Pool, was completed for 870 bbls. in Wilcox sand 4,364-80 feet. The Prairie Oil & Gas Co.'s No. 8 Harber, NE cor. SW SW, Section 19-8-6, made 175 bbls. from Wilcox sand 4,337-54 feet. No. 5 Jones, SE cor. SW SE, Section 11-8-6, was completed for 310 bbls. in Wilcox sand 4,155-63 feet. Amerada Petroleum Corp.'s No. 2 Pattey, SW cor. NW NE, Section 35-8-6, Little River Pool, is dry and abandoned at 4,318 feet. Indian Territory Illuminating Oil Co.'s No. 1 Fore, SE cor. NE NW, Section 35-8-6, has been abandoned at 4,368 feet in the Wilcox sand topped at 4,363 feet. No. 2 Fore, NE cor. SE NW, Section 35-8-6, is also dry and abandoned at 4,290 feet. W. B. Pine and Phillips Petroleum Co.'s No. 1 Pattey, NE cor. SW NE, Section 35-8-6, swabbed 1,025 bbls. from Wilcox sand 4,340-48 feet. Indian Territory Illuminating Oil Co.'s No. 3 Phoebe "A", SE cor. SW SE, Section 36-8-6, made 189 bbls. from Wilcox sand 4,406-08 feet. Mid-Continent Petroleum Corp.'s No. 4 Wadsworth, NE cor. SW SW, Section 36-8-6, is dry and abandoned at 4,280 feet.

Wagoner County

A. Chapman's No. 2 F. Hosmer, NE cor. SE SE, Section 21-18-17, is dry and abandoned at 922 feet. H. D. McCracken's No. 7 Childers, CNL SE NW, Section 21-18-17, is a dry hole at 875 feet. A. K. Crichton's No. 1 Cinda, NE cor. NW SW, Section 22-18-17, is a 5-bbl. well in sand 298-305 feet. M. B. Flesher's No. 1, C NE, Section 18-17-15, has been abandoned at 2,092 feet.

Seminole Production

Production of the greater Seminole area by companies and leases on January 6 was as follows:

Little River

Company and farm—	Wells	Prod.
Amerada:		
Fore	2	1,275
Nitey	4	2,720
Blackwell:		
Nitey	8	4,366
Carter:		
Fish	4	1,515
Jackson	1	935
Continental:		
Cosar	2	550
Gypsy:		
Brown	1	50
Campbell	2	285
Nungee	1	60
Pottey	3	470
Wadsworth	1	.....
Independent:		
Harris	1	104
Independent and White Eagle:		
Davis	2	1,620
Indian Territory:		
Campbell	1	180
Dungan	3	3,240
House, M. A.	1	418
House, W. E., "A"	1	72
House, W. E., "B"	3	1,720
Jackson	3	2,012
McCulla	3	1,240
Nitey	6	1,380
Phoebe, "A"	3	845
Phoebe, "B"	3	740
Reed	1	106
Soketheche	4	940
Hull	1	108
Magnolia:		
Cruse	1	800
Pottey	1	500
Mid-Continent:		
Wadsworth	7	1,300
Smith	1	45
Pine and Phillips:		
Pottey	1	1,000
Prairie:		
Dungan	2	195
House	4	1,930
Roxana:		
Smith	1	10
Sinclair:		
Cosar	1	940
Superior:		
Wadsworth	1	21
Snowden & McSweeney:		
Tiger	1	277
The Texas Company:		
Coker	3	625
Tidal:		
House	3	1,902
Johnson	1	70
Total	94	36,566

Bowlegs

Amerada:		
Rasco	8	3,340
Atlantic:		
Baker	4	420
Fleet	4	520
Grayson	3	1,257
Jones, A.	3	120
Jones, C.	2	423
Barnsdall:		
McNac	1	38
Murrow	4	967
Carter:		
Bowlegs	3	1,240
Burden	3	430
Harjoche	6	1,120
Hilly	2	620
Jones	3	2,445
McGeisey	1	.....
Mellase	1	910
Walker	3	525
Wise	12	6,290
Empire:		
Lacy	6	860
Wise	2	840
Gypsy:		
Bowlegs	1	267
Bradley	1	35
Cumsey	4	1,882
Dosar	1	102
Grayson	4	1,675
Harjoche	1	1,307
Henderson	1	.....
Jones	1	577
Walker	8	2,038
Wise	3	255
Independent-Marland:		
Coker	1	128
Indian Territory:		
Barnett	2	465
Billington	5	375
Bowlegs	11	1,260
Burden	1	11
Davis	4	1,945
Fay	8	4,412
Goforth	11	1,862
Livingston	11	4,782
Lizzie	2	651
Walker	8	1,230
Wilmont	4	1,260
Work	1	.....
Youngblood	2	58
Magnolia:		
Davis, B. F.	1	708
Davis, M.	1	496
Hammond	2	180
Rhoades	2	4,397
Van Buskirk	1	194
McColloch:		
Bowlegs	3	350
Mid-Continent:		
Baker	4	2,304
Bowlegs	1	105
Hutke	1	1
Smith	5	875
Minnehoma:		
Bowlegs	3	112
Prairie:		
Gahagan	4	845
Harber	8	4,665
Jones	4	1,065
Templeton	4	3,670
Whitney	4	570
Pure:		
Reed	15	4,370
Strothers "D"	4	895
Strothers "E"	1	5
Strothers "F"	2	586
Roxana & Houston:		
Taylor	6	1,439
Shaffer:		
Lacy	3	747
Sinclair:		
Bowlegs	1	.....
Cumsey	3	3,936
Ellen	6	2,268
Harjo	3	1,035
Jones	6	5,841
Taylor	4	3,622
Walker	4	1,000
Texas:		
Reed	10	3,895
Tidal:		
Grayson	43	1,475
Harjoche	6	1,810
Twin States:		
Jones	2	.....
Total Bowlegs	295	102,403

Earlsboro

Amerada:		
Anderson	3	2,065
Cowden	8	2,315
Rodgers	3	2,310
Barnsdall:		
Brown	4	2,165
Bruner, F.	2	250
Bruner, N.	4	1,645
Cudjo, C.	1	28
Davis, D.	3	1,197
Davis, J.	4	558
Davis, M.	3	1,572
Gibson	7	2,526
Hearn	1	18
Ingram	7	7,356
Pack	4	184
Peter	4	761
Sango	3	2,570
Sebolka	1	1,036
Sullivan, H.	2	26
Sullivan, Harjo	3	69
Wasutke	4	1,498
Carter:		
Davis	1	820
Payne	3	955
Sango	4	5,555
Continental:		
Kays	2	425
Spencer	4	2,320
Crosbie:		
Bryant	2	325
Empire:		
Barker	1	3,112
Edmundson	3	1,360
Gypsy:		
Bruner	4	2,040
Carter	11	4,962
Earl	1	27
Hunick	1	2,415
Bora	1	.....
Noble	4	5,182
Peter	6	152
Sango	4	7,072
State	4	1,117
Independent:		
Bruner	4	170
Sullivan	4	25
Knapp	5	3,275
Gaines	2	1,265
O'Dell	4	85
Inter-Ocean:		
Payne	1	.....
Magnolia:		
Bryant	6	2,586
Cowden	4	94
Dixon	1	.....
Edmundson	3	64
Holmsley	8	2,093
Ingram	1	30
Lena	3	98
Seay	8	4,533
Simpson	3	360
Sparks	7	3,001
Sullivan	3	873
Mid-Continent:		
McCumber	7	1,245
Mid-Kansas:		
Anderson	4	529
Phillips:		
Dunnaway	1	30
Graham	7	207
Prairie:		
Baker	1	50
Davis	4	1,125
Graham, C.	2	72
Graham, O.	4	2,380
Stidham	13	5,290
Roxana:		
Bayliss	1	19
Spencer	2	2,665
Shaffer:		
Clark	5	1,599
Sinclair:		
Foreman	1	15
Hollins	3	705
Sango	1	5,510
Skelly:		
Spencer	2	1,001
Texas:		
Anderson	6	1,277
Brown	8	2,800
Rodgers	3	5,285
Wilmont	6	3,424
Tidal:		
Watkins	6	2,820
Twin State:		
Barker	4	150
Hearn	3	5,180
Total Earlsboro	288	129,418

Seminole

Carter:		
B. Carter	2	200
J. Carter	3	23
F. Carter	3	105
Creamer	2	22
R. Cudjo	4	365
W. Cudjo	2	25
Gilliland	2	340
Grisso, M.	1	380
Grisso, W.	5	1,125
Jackson	1	10
Knapp	3	15
Killing, M.	12	8,000
Killing, G.	4	510
Lukes	1	1,440
Ponder	2	63
Simpson	3	62
Strother	4	490
Vierson	3	400
Amerada:		
Fixico	4	677
Killing	4	470
Rentie	3	679
Atlantic:		
Cudjo, N.	3	655
Barnsdall:		
Carter	8	1,851
Henry	2	650
Jones	4	1,100
Empire:		
Gross	3	135
Wilson	2	328
Gypsy:		
Butler	3	1,085
Carter	8	430
Cudjo	5	417
Fixico	7	156
Harjo	3	830
Wolf	6	167
Independent and McCulloch:		
Butler	3	960
Independent:		
P. Fixico	3	295
Harjo	3	110
Independent & Garland:		
T. Fixico	8	840
Independent & Interocean:		
Jones	4	394
Indian Territory:		
Allen	2	512
Bowlegs	12	2,227
Fleet	1	11
Gooden	4	368
Harjo	4	102
James	4	164
Reed	3	21
Kingwood:		
Johnson	3	1,332
Magnolia:		
Born	1	62
Francis	4	900
Mid-Continent:		
Rentie	9	1,160
Tayeche	7	260
Mid-Kansas:		
Wilkins	1	192
Phillips:		
Strothers	2	80
Prairie:		
Gross	5	145
Mason	1	100
Spencer	1	10
Strother	5	1,315
Pure:		
Strother, A.	17	3,515
Strother, B.	5	1,740
Strother, C.	1	41
Roxana:		
Harber	2	282
Lashley	2	48
Sinclair:		
Cudjo, A.	6	785
Cudjo, B.	4	995
Dicey	2	1,570
Fixico	4	640
Slick:		
Cudjo	3	630
Franks	8	1,090
Giblet, Sam	3	2,160
Tiger	1	30
Superior:		
Cudjo	4	717
Texas:		
Mayhue	1	315
Strothers	2	125
Tidal:		
Carter	4	625
Fixico	6	605
Harjo, D.	3	745
Harjo, T.	6	230
Mahardy	2	40
Turman:		
Cudjo	4	1,438
Grisso	1	15
Jones	4	1,150
Total	319	54,295

Searight

Carter:		
Davis	7	1,550
Frazier	1	3,625
Johnson	1	10
Kiker	1	30
Mandler	2	40
Scott	1	30
Amerada:		
Johnson	1	30
Strother	2	1,572
Gypsy:		
Cudjo	4	555
Mid-Continent:		
Grayson	6	55
Soloche	3	1,525
Pine:		
Lulia	1	45
Prairie:		
Cannon	1	5
Carter	1	25
Houck	1	5
Kincaid	5	80
Wiemer	1	10
Superior:		
Varnum	1	75
Pure:		
Aldridge	6	3,406
Roxana:		
Strother		2,180
Sinclair:		
Polly	4	2,280
Texas:		
Fleet	1	45
Twin State:		
Varnum		483
Wilcox:		
Chupco	8	2,905
Total	69	20,626
Total Little River	94	36,566
Total Bowlegs	295	102,403
Total Earlsboro	288	129,418
Total Seminole	319	54,295
Total Searight	69	20,626
Grand total	1,066	343,308

REPRESSURING AIDS NORTH TEXAS WELLS

(Continued from Page 32)

When conditions are better then the wells are to be put on daily production.

Generally, throughout the Wichita Falls district, there are several old pools where operators are reported to be considering building up pressure in the sands in an effort to straighten out production curves. In most of the pools no gas lines are close and they either have to recycle what little gas is made by the wells or force air into the sands to strip the sand of more oil.

SLIGHT DECREASE IN PLANT OPERATIONS

(Continued from Page 33)

REFINERY OPERATIONS IN NORTH CENTRAL TEXAS
(Plants which have been in operation during the past year)

Name and Location—	Daily Capacity	Runs Jan. 1	Runs Dec. 1
Amarillo Producers & Refiners Corp., Isom	2,000	1,000	1,000
Amarillo Refining Co., Amarillo	5,000	3,000	2,900
American Refining Co., Wichita Falls	7,000	2,600	2,700
Anderson & Prichard Oil Corp. (Western), Wichita Falls	1,500	Shut down	Shut down
Col-Tex Refining Co., Colorado	10,000	7,750	6,500
Continental Oil Co., Wichita Falls	6,000	3,600	3,600
Dale Oil & Refining Co., Electra	2,500	1,800	1,200
Empire Oil & Refining Co., Gainesville	5,000	4,000	4,000
Falls Refining Co., Wichita Falls	1,500	1,000	600
Gulf Refining Co., Fort Worth	10,000	8,000	7,100
Hagaman Refining Co., Tiffin	2,000	200	100
Humble Oil & Refining Co., Burkburnett	4,000	Shut down	Shut down
Humble Oil & Refining Co., McCamey	10,000	11,000	11,000
Iowa Park Producing & Refining Co., Iowa Park	2,500	1,200	900
Kent-Middleton Refining Co., Angus	4,000	1,700	1,200
Kent-Middleton Refining Co., Minerva	2,500	1,000	1,000
Macmillan Petroleum Co., Isom	4,500	4,000	4,000
Magnolia Petroluem Co., Fort Worth	12,000	5,500	5,400
Magnolia Petroleum Co., Corsicana	4,000	3,200	3,200
Noble Oil & Gas Co., Burkburnett	4,500	3,200	3,700
Olney Oil & Refining Co., Olney	1,500	1,400	1,500
Oriental Refining Co., Dallas	5,000	Shut down	Shut down
*Oriental Refning Co., (Trinity), Dallas	5,000	3,500	2,500
Orient Petroleum Co., Wichita Falls	4,000	800	750
Panhandle Refining Co., Wichita Falls	4,000	3,850	3,500
Phillips Petroleum Co., Isom	2,000	1,600	1,600
Primrose Refining Co., Wichita Falls	1,500	Shut down	Shut down
Primtex Refing Co., Grand Prairie	2,500	Shut down	Shut down
San Angelo Refining Co., San Angelo	1,500	1,000	1,500
Simms Oil Co., Dallas	5,000	4,000	4,100
Star Refining & Producing Co., Fort Worth	1,800	300	Shut down
Swastika Refining Co., Muenster	1,000	Shut down	Shut down
The Texas Company, Dallas	15,000	12,000	10,000
Tidal Western Refining Co., Burkburnett	3,000	2,000	2,000
Texas Pacific Coal & Oil Co., Fort Worth	6,000	2,000	2,500
Transcontinental Oil Co., Fort Worth	5,000	3,000	3,000
Waggoner Refining Co., Electra	3,400	1,900	2,700
White Eagle Oil & Refining Co., Fort Worth	4,000	Shut down	Shut down
Valley Refining Co., Wichita Falls	2,500	Shut down	1,700
Total	174,200	101,100	97,250

TEXAS PANHANDLE

(Continued from Page 38)

making 20 bbls. of oil and 50 bbls. of water. It had lime at 1,458-73 feet, was plugged back 2 feet and shot with 60 quarts.

Eastland County

Cisco-Falls Oil Co.'s No. 1 Rumph was dry and abandoned at 1,590 feet. Magnolia Petroleum Co.'s No. 9 Hawkins was shot with 20 quarts at 2,742-52 feet, making 3 bbls. of oil and 150,000 feet of gas. Mays and others' No. 1 Nivers was completed for 40 bbls. at 1,381-1,400 feet, total depth 1,418 feet, after a 10-quart shot.

Mook-Texas Oil Co.'s No. 9 Sibley was flowing 15,000,000 feet of gas at 2,996 feet and was fishing for tools.

Parsons and others' No. 3 Blackwell made 600 bbls. initial at 2,988-3,001 feet and also 8,000,000 feet of gas. At latest report it was flowing 440 bbls.

Palo Pinto County

Clements and others' No. 1 Broanfield was dry and plugged at 1,302 feet. Camp Oil & Gas Co.'s No. 1 Costello was also plugged and abandoned at 2,313 feet. McGinley and others' No. 1 Hinkson was temporarily abandoned at 570 feet.

Shackelford County

Evans and others' No. 1 King made 50 bbls. at 1,625-32 feet, total depth 1,643 feet. Thomas' No. 1 Herron was dry and plugged at 1,175 feet. Wylie and others' No. 3 Matthews made 10 bbls. at 1,142-54 feet, total depth 1,158 feet.

Stephens County

Texas Consolidated Oil Co.'s No. 10 Walker (Martin) produced 10 bbls. of oil and 60 bbls. of water at 3,962-67 feet in lime. Clark and others' No. 3 Riddle made 28 bbls. at 1,820-55 feet, total depth 1,880 feet. Lyman and others No. 1 Curry had lime at 3,092-3,148 feet making 700,000 feet of gas. Total depth is 3,180 feet.

Mook-Texas Oil Co.'s No. 4 Riddle was dry and plugged at 2,200 feet. Texas Pacific Coal & Oil Co.'s No. 6 Pierce was a failure at 1,803 feet. Thompson and others' No. 1 Riddle was dry and abandoned at 2,250 feet.

McCulloch County

Brown & Shore's No. 1 Shelton was plugged at 1,252 feet. Ragsdale and others' No. 2 Dutton was also plugged at 650 feet. Wakefield and others' No. 2 Dutton was dry and abandoned at 815 feet. This well had a rainbow showing at 785-87 feet.

WICHITA FALLS DISTRICT

Archer County

Burns and The Texas Company's No. 2 Burns was dry and Burton's No. 1 Farmer is a 40 bbl. pumper at 1,524-30 feet. Roberts Oil Co.'s No. 4 Garvey was dry and abandoned at 915 feet. Ross and associates' No. 1 Garvey was dry and abandoned at 904 feet. Ross and associates' No. 1 Morrison was dry and abandoned at 1,534 feet. Wilson's No. 3 Farmer is pumping 75 bbls. at 1,525-29½ feet. Continental Oil Co. Perkins and Cullum's No. 6 Wilson is making 7½ bbls. of oil and 7½ bbls. of water from sand at 1,241-51 feet. Empire Gas & Fuel Co.'s No. 1 Wilson was dry and abandoned at 1,542 feet. Kentucky Oil Corp.'s No. 1 Wilson was dry and abandoned at 1,511 feet. Shappell Oil Co.'s No. 16 L. F. Wilson is making 10 bbls. at 893 to 902 feet. Carey and Rhader's No. 3 Farmer is pumping 16 bbls. of oil at 1,506-10½ feet. Hines and The Texas Company's No. 2 Farmer was dry and abandoned at 1,506 feet.

Cooke County

J. C. McFarland's No. 1 M. K. & T. is a 10 bbl. well at 1,317-47 feet. Oil Operators Trust Co.'s No. 8 Kleiss was temporarily abandoned at 1,652 feet.

Haskell County

Moody Oil Corp.'s No. 1 Reynolds was temporarily abandoned at 1,703 feet.

Jack County

Buttram Petroleum Co.'s No. 5 Jones Estate is a 62 bbl. well at 2,014-23 feet.

Montague County

Roy Carter and Rycade's No. 1 Cunningham is a 55 bbl. well at 916-38 feet. Continental Oil Co.'s No. 24 Maddox-A is making 31 bbls. from 911-31 feet. Humble Oil & Refining Co.'s No. 2 Hinton is pumping 40 bbls. from sand at 793-96 feet. Pure Oil Co.'s No. 2 Loy et al is making 60 bbls. from 783 to 805 feet. Sigler and associates' No. 4 Maddox is pumping 39 bbls. from 917-35 feet.

Throckmorton County

Falls Production Co.'s No. 4 Graham is estimated to be a 20-bbl. pumper at 1,810-18 feet. Red Bank Oil Co.'s No. 1 Cole was plugged back from 4,516 feet to 3,970 feet and shot with 120 quarts at 3,945-68 feet and made 20 bbls. on the pump. Associated Petroleum Co.'s No. 4 Cummings was dry and abandoned at 3,065 feet. Parker and associates' No. 4 Matthews is being plugged to abandon at 1,664 feet after getting a showing at 1,494-95 feet.

Wichita County

Electra Production Co.'s No. 6 Burnett is estimated to be a 15 bbl. well at 1,578-91 feet. On W. H. Hammon and associates' McCarty "C" lease three wells were completed. No. 2 is a 3 bbl. well at 238-44 feet; No. 4 made 4 bbls. at 228-43 feet and No. 5 made 2 bbls. at 227-36 feet. Vergate Oil Co.'s No. 1 Deep Watkins is making 75 bbls. of oil and 4 bbls. of water at 1,777-79½ feet. Ascot Co.'s No. 45 Roller was dry and abandoned at 1,485 feet. A. A. Rollstone's No. 1 Schackenberg was dry and abandoned at 3,590 feet. Cooper and Mishler's No. 13 Waggoner Brothers was dry and abandoned at 1,893 feet. Petroleum Producers Co.'s No. 5 Deep M. A. Love B is making 40 bbls. from sand at 1,805-16 feet.

Wilbarger County

Waggoner Refining Co.'s No. 1 Waggoner-E is pumping 76 bbls. from 2,285-87 feet and 2-310-29 feet. Fain and McGaha Oil Corp.'s No. 2 Waggoner-L swabbed 100 bbls. from 2,284-99 feet. Phillips Petroleum Co.'s No. 2 Waggoner-C is pumping 12 bbls. from 1,917-34 feet. Same company's No. 12 Waggoner-F swabbed 15 bbls. the first 24 hours from 2,396 to 2,403 feet. Phillips Corp.'s No. 1 Waggoner-M-M was drilled to 2,390 feet; plugged back to 2,330 feet and is pumping 60 bbls. from 2,303-21 feet. The Texas Co.'s No. 4 Waggoner-B is swabbing 10 bbls. per hour from broken oil sand at 2,362-78 feet.

Young County

Hines and associates' No. 1 Gregg was dry and abandoned at 651 feet. Roberts Oil Corp.'s No. 1 Stewart-A was dry and abandoned at 897 feet. Lenor Oil Co.s No. 1 Robertson was dry and abandoned at 2,450 feet.

Week Ending January 7
WICHITA FALLS DISTRICT

County—	Prod'n
Archer	20,810
Baylor	65
Clay	520
Cooke	4,310
Jack	1,225
Montague	9,230
Throckmorton	1,090
Wichita	27,100
Wilbarger	9,795
Young	11,505
Totals	85,650
Totals last week	87,865
Decrease	2,215
Ranger District—	
Brown County	14,895
Callahan County	4,130
Coleman County	1,225
Comanche County	1,320
Palo Pinto County	445
Ranger	7,635
Shackelford County	5,225
Stephens County	8,515
Total Danger Dist.	43,390
Total last week	46,525
Decrease	3,135
Total both areas	129,040
Total last week	134,390
Decrease	5,350

WEST TEXAS MEETING ON OIL CONSERVATION

WICHITA FALLS, Tex., Jan. 14.—Members of the legislature from West Texas have been invited to attend the January meeting of the Oil and Gas Bureau of the West Texas Chamber of Commerce, at San Angelo, January 25. The purpose is to show the need for remedial legislation for the oil industry and to discuss plans for co-operation of landowners, leaseholders and producers on a method of preventing overproduction and waste of the mineral resources, not only of West Texas but of the state.

There will also be a general discussion of the Relinquishment Act and, if this legislation is declared unconstitutional some remedy to protect the thousands of West Texas land owners involved will be considered. The announcement from the Attorney General's department that efforts will be made to declare the Relinquishment Act unconstitutional, has aroused the oil fraternity, due to the fact that the record discloses approximately 5,000,000 acres of land primarily in West Texas, are involved by sales, some made several years ago. If the act is declared unconstitutional many oil men believe it will bring about choas, not only in development of West Texas but possibly of other sections.

The meeting of San Angelo will not only be for the lawmakers and oil men, but land and royalty owners are also being urged to attend. Other meetings will be held in various oil sections.

Landowners are becoming more interested in the development of these mineral resources since development of West Texas at large depends materially on the progress of the petroleum industry, second only to agriculture.

FRED O. WRIGHT, PIPE LINE OFFICIAL, DIES

OIL CITY, Pa., Jan. 9.—Fred Orville Wright, aged 59, one of the best known of eastern pipe line officials, died at his home here today. He was superintendent of the National Transit Co. and was a leading figure in the recent sale of the Pure Oil Co. pipe lines to the National Transit. He entered the employment of the National Transit in 1890 and was made superintendent a year ago. He worked in most of the eastern fields at various times in pipe line work and was considered one of the best posted pipe liners in the East.

JUDGE STORY DIES

SHREVEPORT, La., Jan. 7.—Judge Hampden Story, 75 years old, general counsel for The Texas Company in Louisiana and Arkansas, died January 4 at his home in Shreveport following an attack of heart trouble. He had practiced law in Louisiana, Chicago, California and Arizona and came to Shreveport in 1912. He successfully prosecuted a suit involving title to some of the richest leases in the Homer oil field, winning judgment for over $1,000,000.

POSTPONE HEARINGS IN UNIVERSITY CASES

AUSTIN, Tex., Jan. 7.—Submission to the Supreme Court of the several mandamus cases involving the validity of University of Texas oil and gas permit statutes and the relinquishment act will not occur January 18, as originally set. Postponement was agreed to to a date not earlier than February 29.

HEADS DETROIT SALES

CHICAGO, Jan. 7.—Following the recent death of H. F. Troxell, Detroit representative of the Indian Refining Co., of Lawrenceville, Ill., W. S. Heier has been made manager of all sales both wholesale and retail at Detroit. A. B. Dobbs has been placed in charge of tank car sales at that city.

REFINERY GASOLINES FAIL TO MAKE RALLY

(Continued from Page 28)

duction at prices from 2½ to 5 cents higher.

The 70-cent fuel was still available and good quantities of it were being moved on large orders, but new inquiries indicate additional purchases of large quantities will be made during the next week at 75 cents. The above applies to the material below 18 gravity and similar strength is shown for the higher gravity fuels having a low cold test. The cold weather has increased consumption some and buyers are satisfied prices will not go lower in view of the generally better crude situation at present.

Lubricants Slow

Lubricants and wax continued to move slowly but refiners were more confident in the future of these markets. The conditions on the Gulf Coast have improved somewhat as a result of the curtailing of operations there and Oklahoma refiners were not faced with the abnormally low Gulf Coast lub prices as was the condition several weeks ago. Wax shipments may be said to be only fair but an increased number of inquiries from export purchasers has lent renewed confidence in the immediate future of prices.

Cylinder stocks were more plentiful and while there was no general lowering of prices, they did not enjoy the stability shown throughout the latter part of 1927. A similar weakness was apparent in bright stocks and most of the D colored 150 to 160 viscosity material moved at a fraction below last week's price. The

production of bright stock is being maintained at a high rate because of the advantage in savings effected during quantity production, but at present prices the margin between the manufacturing cost and sales price is said to be very little, even with this quantity production.

Gasolines and Naphthas

As refiners chose to store a portion of their gasoline production in preference to selling it in differential territory and meet the low prices there, a wide range of quotations was set up. Those refiners who followed out this program of storing refused to sell their U. S. Motor gasoline under 6 cents and their sales were pretty well restricted to the local market. On the other hand, gasoline was moved into the northern states at 5½ cents. Only a little material was moved at either of these prices, however, the total volume of sales being small. The high gravity gasoline continued to be the more popular but prices showed no tendency to strengthen and in a few cases small concessions in price were reported.

Naphtha sales were few and prices were generally weaker, acting in sympathy with the gasoline market. The production of naphtha has gradually decreased until it represents a very small portion of the light oil production and is in little demand as a blending stock for natural gasoline manufacturers because U. S. Motor gasoline may be purchased at almost the same price and the blended gasoline resulting is a very good motor fuel, especially for winter use.

Kerosene and Distillates

The general price quoted on 41-43 kerosene was 4¼ cents and its movement was slow. Some material was moved under that figure and some refiners consistently received 4⅜ cents for theirs, but this can be accounted for in the relatively wide difference in the quality of different kerosenes. The 42-44 grade was generally sold at 4¾ cents. There was no change in the price on regular untreated 38-40 distillate but the treated, low flash 38-40 distillate was generally sold at higher prices, the top price being 3¾ cents. Low gravity, low flash distillates showed the same strength, the 36 gravity 170 flash transparent distillate bringing from 2¾ to 3 cents.

Natural Gasolines

The strength given the natural gasoline market as a result of the export shipments has extended throughout all grades, but prices did not materially advance because of the indefiniteness of the market after present contracts are filled. These export shipments are being made over the first half of the month and there is little business in sight just at present to cover the latter part of the month. The A and AA grades showed no price change while the B grade was quoted at 4¼ cents, one-quarter cent above last week's price. The C grade was plentiful, but the unusual demand allowed manufacturers to get 3⅝ cents, which is slightly better than last week's general low quotation.

Gas Oil and Fuel Oil

The purchase of several large lots of heavy fuel at 70 and 75 cents set the minimum of the market and there was no report of any lower priced material moving. The weak gasoline market continues to hold the price of gas oil relatively low and there is little thought of prices materially strengthening due to the large stocks built up at many refineries through last year. The low cold test gas oils were popular as cheap furnace oils and the transparent low-flash material brought as high as 2¾ cents.

Lubricants and Wax

The strain of the lub market was somewhat relieved by the lesser competition from a price standpoint on the part of refiners in the Gulf Coast area, but with the present demand showing its usual seasonal decline there is no tendency to increase prices. Wax shipments were only fair over the week but there were several inquiries from export buyers indicating a better future for the material. Refiners were generally quoting at 2⅝ cents with hopes of further advancing the price on the basis of these export inquiries developing into orders.

WILDCAT OPERATIONS IN WEST TEXAS

(Continued from Page 40)

Lipan Oil Co.'s No. 1 S. M. Conner, Sec. 71, Blk. 2, H. & T. C. Sur. — Show oil 1,224-34 ft.; shut down lime 3,317 ft.

Lipan Oil Co.'s No. 1 E. C. Rawlings, Sec. 390, Blk. 1-A, H. & T. C. Sur., elev. 2,750 ft. — Total depth 2,736 ft.; shut down.

CONCHO COUNTY

Parks & Lawson's No. 1 Schultz — Show oil 925 ft.; shot with 40 and 30 qts.; no results; shut down 1,500 ft.

The Exploration Co.'s No. 1 Hartgrove, Blk. 240, J. Schouch Sur., elev. 1,718 ft. — Set 10-in. 760 ft.; shut down 980 ft.

CRANE COUNTY

Crane Dev. Co.'s No. 1 J. R. Mosley, S cor. Sec. 18, Blk. 6, H. & T. C. Sur. — Drlg. 910 ft.

Gulf Prod. Co.'s No. 3 W. N. Waddell, SE cor. NE Sec. 3, Blk. B-25, Public School Land — Top salt 1,165 ft.; drlg. 2,700 ft.

J. K. Hughes Dev. Co.'s No. 1 State Bank Commission, CSL Sec. 18, Blk. 4, H. & T. C. Sur. — Location.

Humble O. & R. Co.'s No. 1 University-B — Drlg. 950 ft.

Independent O. & G. Co.'s No. 2 University-B — Top salt 1,270 ft.; drlg. 2,130 ft.

CROCKETT COUNTY

George Anderson and Marland Oil Co.'s No. 1 University — Hole full sulphur water 1,800 ft.; ½ bailer oil 2,240 ft.; ½ bailer sulphur water per hour 2,475 ft.; shut down 2,631 ft.

V. T. Bolin & Co.'s No. 1 P. C. Coates, NW cor. SW Sec. 4, Blk. 2, I. & G. N. Sur. — Shut down 2,110 ft.

Corbett & Gill's No. 1 University — Top salt 855 ft.; smell gas 1,800 ft.; hole full sulphur water 1,985-90 ft.; shut down 2,315 ft.

Dixie Oil Co.'s No. 1 George Thompson — New location.

J. S. Cosden, Inc., No. 1 Paul Perner, SW cor. Sec. 36, Blk. 2, I. & G. N. Sur. — Shut down 595 ft. for 15-in. pipe.

Humble O. & R. Co.'s No. 2 P. J. Sorg Est. — New location; building rig.

James Kelly et al's (was Corbett & Gill's) No. 1 Todd, C NE Sec. 43, Blk. WX, G. C. & S. F. Sur. — Top salt 993 ft.; show oil 1,948 ft.; 700 ft. sulphur water in hole 2,450 ft.; total depth 2,605 ft.; plugged back to 1,948 ft. and shot 120 qts. 1,909-45 ft.; hole filled 250 ft. with water with slight scum of oil.

Van McPhail's No. 1 George Thompson — Location.

Van McPhail et al's No. 1 George Thompson — Location.

Osage Oil Corp.'s No. 2 Halff, 1,200 ft. down river from No. 1 in Sec. 70, Blk. 1, I. & G. N. Sur. — New location.

William Schaffer et al's No. 2 University, 1,350 ft. N and 2,610 ft. E of SW cor. Sec. 9, Blk. 47, University Land — Top salt 1,060 ft.; first oil show 2,190-96 ft.; second 2,225-29 ft.; 1 bailer oil in 10 hrs. at 2,590 ft.; shut down 2,635 ft., brown lime.

Simmons Oil Co. et al's No. 1 H. M. Halff, NW cor. Sec. 69, Blk. 1, I. & G. N., elev. 2,157 ft. — Top salt 445 ft.; show oil 610 ft.; 500,000 ft. gas 854 ft.; drlg. 1,255 ft. anhydrite.

W. W. Donnelly & Young's No. 1 Massey, Sec. 29, Blk. U-V — Shut down 520 ft.

World Oil Co.'s No. 1 Schneeman-B, Sec. 50, Blk. BB, G. C. & S. F. Sur. — Top salt 1,070 ft.; hole full salt water 2,210-15 ft.; drlg. by tools 2,310 ft.

Young & Donnelly's No. 1 J. M. Shannon, C Sec. 11, Blk. 9, D. & S. E. Sur. — 7,000,000 ft. gas at 1,662 ft.; shut down 1,676 ft.

CULBERSON COUNTY

Deep Rock Oil Co.'s No. 2 Kloh-Rumsey, Sec. 21, Blk. 29, T. & P. Sur., T-1 (NE of No. 1) — Shut down 1,165 ft.

Deep Rock Oil Co.'s No. 1 J. P. Seay — Shut down 225 ft.

Hickey & Stivers' No. 1 C. O. Finley — Location.

James H. Gardner et al's No. 1 Radford, C SE Sec. 29, Blk. 62, Public School Land Sur. — Fish. 750 ft.

Scott & Dittman's No. 1 Miller, SW cor. NW NE Sec. 3, School Blk. 97 — Drlg. 675 ft.

EL PASO COUNTY

Ellsworth & Haunt's No. 1 McKinney & Jones — Moving in material.

FISHER COUNTY

Cranfill & Reynold's No. 1 J. A. Young, Sec. 208, B. B. B. & C. Sur. — Hole full salt water 2,400-35 ft.; fish. for pipe 2,890 ft.

Ideal Oil Co.'s No. 1 Jameson, C SE Sec. 111, Blk. 1, H. & T. C. Sur. — Hole full salt water 2,345-2,520 ft.; shut down 3,304 ft. (cor.).

Marland Oil Co. and Texon's No. 1 McCall, Sec. 108, Blk. 3, H. & T. C. Sur. — Rig.

Marland Oil Co. and Vacuum Oil Co.'s No. 1 J. H. R. Lagow — Hole full salt water 3,530 ft.; drlg. 3,630 ft.

R. W. Raney's No. 2 Maberry, Sec. 56, Blk. 1, T. & P. Sur. — Shut down for orders 2,743 ft.

The Texas Company's No. 1 D. S. Stevens, C SW SE SE Sec. 79, Blk. 1, H. & T. C. Sur. — Hole full water 2,570-2,615 ft.; top pay 3,239 ft.; total depth 3,240 ft.; hole filled up with 38 gravity oil and flowed 30 bbls.

FOARD COUNTY

Clark et al's No. 1 Atkins — Lime 1,580-1,930 ft.; show gas 1,885 ft.; shut down for casing 2,510 ft.

The Texas Company's No. 1 Watkins — Total depth 3,720 ft.; pulling pipe to abandon.

GAINES COUNTY

Westheimer & Daube's No. 1 Birge & Forbes Land Co., Sec. 308, Terrell County School Land — Cem. 8-in. 3,900 ft.; shut down approx. 5,300 ft.; will prob. plug.

GARZA COUNTY

Emerald Oil Co.'s No. 1 D. Boren, NW cor. NE Sec. 137, Blk. 5, H. & G. N. Sur. — Small show oil in gray lime 1,884-1,902 ft.; shut down 2,600 ft.; show oil and hole full water 2,420-60 ft.

Gulf Prod. Co.'s No. 1 E. P. Swenson-A, Sec. 67, Blk. 2, H. & G. N. Sur. — Top salt 495 ft.; top lime 2,075 ft.; reaming to set 8-in. 3,035 ft.

GLASSCOCK COUNTY

Texon & Marland's No. 1 Settles — Set 10-in. 1,420 ft.; top lime 2,015 ft.; drlg. 2,360 ft.

HOWARD COUNTY

California Co.'s No. 1 Fisher Bros., SE SW NW Sec. 36, Blk. 33, T. & P. Sur., T-1-S — Shows oil 1,530-48 ft. and 1,562-64 ft.; hole full water 2,020-34 ft.; hole full salt water 2,750-75 ft.; top lime 3,065 ft.; hole full sulphur water 3,790-3,800 ft.; total depth 3,810 ft.

Coyle-Concord Oil Co.'s No. 3 Dora Roberts, Sec. 156, Blk. 29 — Drlg. 1,420 ft.

Dixie Oil Co.'s No. 1 H. R. Clay — Shut down 3,325 ft.; show oil 3,320 ft.

Henshaw et al's No. 1 W. R. Settles, SW SE SW Sec. 135, Blk. 29 — Hole full sulphur water 1,325-30 ft.; shut down 1,900 ft.

Lockhart & Co.'s No. 1 Dora Roberts, Sec. 157, Blk. 29 — Drlg. 1,420 ft.

Marland Oil Co.'s No. 1 Clay-E, NW NE SE Sec. 138, Blk. 29 — Pay 2,480-2,500 ft.; swabbed approx. 160 bbls.; hole full salt water 3,360-70 ft.; total depth 3,656 ft.; pulling casing to straightream.

Marland Oil Co.'s No. 1 Richardson, C NW Sec. 12, Blk. 32, T. & P. Sur., T-1-S — Top salt 870 ft.; hole full salt water 2,235-2,300 ft.; total depth 2,390 ft.; set 8-in.

Marland Oil Co. and Zoch's No. 1 Jones, Sec. 32, Blk. 27, T. & P. Sur., elev. 2,218 ft. — Top lime 2,250 ft.; drlg. 2,585 ft.

Mays, Nixon & Flowers' No. 1 W. J. Flowers — Little salt at 976-97 ft.; top salt 1,114 ft.; shut down 1,390 ft.

Miley and Marland Oil Co.'s No. 1 C. D. Read, C NW Sec. 12, Blk. 31, T. & P. Sur., T-1-N — Spudded and shut down 5 ft.

Owens & Sloan's No. 2 Dora Roberts, SW cor. SE Sec. 136, Blk. 29 — Swabbed 200 bbls. in 3 hrs. at 2,560-92 ft.; drlg. ahead 2,630 ft.

Peer Oil Corp.'s No. 1 Read, C NW Sec. 39, Blk. 30, T. & P. Sur., T-1-N — Hole full salt water 2,790-2,820 ft.; total depth 3,215 ft.; drlg. up iron.

Schermerhorn Oil Co.'s No. 1 Dora Roberts — Swedging casing 2,320 ft.

Schermerhorn Oil Co.'s No. 1-A Dora Roberts, SW cor. NE — Drlg. 906 ft.

Sun Oil Co.'s No. 1 W. R. Settles, Sec. 135, Blk. 29 — Drlg. 100 ft.

Texon O. & L. Co. and Marland Oil Co.'s No. 1 Mrs. Connaly, NE cor. Sec. 15, Blk. 33, T. & P. Sur., T-1-N — Top salt 1,425 ft.; hole full salt water 1,760-1,800 ft.; show oil 3,065 ft.; hole full sulphur water 3,500-55 ft.; hole full water 3,925-50 ft.; show oil 4,125-36 ft.; total depth 4,146 ft.; cem. 6-in.

Texon O. & L. Co. and Marland Oil Co.'s No. 2 W. R. Settles — Shut down for storage; sand at 1,280-84 ft.; total depth 1,298 ft.

Texon & Marland's No. 2 W. R. Settles-A — Rig; drlg. water well.

Ward Oil Co.'s No. 1 Dora Roberts — Cem. 8¼-in. pipe at 1,675 ft.; rigging up machine.

Weekly Oil Corp. et al's No. 1 Dora Roberts, Sec. 156, Blk. 29 — Drlg. 530 ft.

HUDSPETH COUNTY

American Land Co.'s (was Lockhart Bros.') No. 1 Gardner & Moseley, C SE Sec. 5, School Blk. 21 — Shut down 1,000 ft.

Western States Oil Co.'s (was Lockhart & Co.'s) No. 1 Moore, C SE Sec. 16, Blk. 71, T. & P. Sur., T-6 — Ran 12-in. 905 ft. and shut down.

Western States Oil Co.'s No. 1 Gardner & Moseley, Sec. 12, Blk. 18 — Drlg. 300 ft.

IRION COUNTY

F. E. Webb et al's No. 1 J. M. Nutt — Spudded and shut down 125 ft.

JEFF DAVIS COUNTY

J. K. Hughes Dev. Co.'s No. 2 Means — Straightening hole 2,600 ft.

Humble O. & R. Co.'s No. 2 Crecencio Flores, 1,130 ft. N and 850 ft. E of SW cor. Sec. 34, Blk. 58, T. & P. Sur., Twp. 5 — Drlg. 3,310 ft. with hole full water.

JONES COUNTY

Midwest Expl. Co.'s (was Campbell et al's) No. 1 L. H. Herndon, Sec. 6, M. E. P. & P. Sur., elev. 1,832 ft. — Total depth 3,009 ft.; will shoot showings at 2,435-39 ft. and 2,558-61 ft.

Garland & Diamond's No. 1 E. D. Glynn, SE cor. Sec. 18, Deaf & Dumb Asylum Lands — Shut down 2,430 ft.

Hutson & Weaver's No. 1-A Smith — Hole full water 2,240-50 ft.; drlg. 2,260 ft.

Phillips Pet. Co.'s No. 1 O. H. Pomroy, SE cor. SW Sec. 16, Blk. 18 — Drlg. 610 ft.

W. G. Stough et al's No. 1 W. C. Bennett, Sec. 42, Orphan Asylum Sur. — Shut down 800 ft.

W. G. Stough and others' No. 1 J. P. Willis, J. C. Patterson Sur. No. 2 — Shut down 1,740 ft.

Swensondale Oil Co.'s No. 1 Caton, SW NW Sec. 9, Deaf & Dumb Asylum Lands — Show oil 3,008-20 ft.; shot 30 qts., no results; total depth 3,398 ft.; plugged back to 3,065 ft.; will shoot again.

KNOX COUNTY

Deep Rock Oil Co.'s No. 1 Moore — Shut down 900 ft.

Deep Rock Oil Co.'s No. 1 Big Four, 1,370 ft. S and 2,590 ft. W of NE cor. Sec. 31, Blk. 4 — Shut down 2,513 ft.

LOVING COUNTY

Delaware Oil Co.'s No. 1 Lockhart & Ramsey ..... Rigging up cable tools.
Lockhart Bros.' No. 1 fee, Sec. 85, Blk. 33, H. & T. C. Sur. ..... Shut down 450 ft. for repairs.
Owens & Sloan's No. 1 W. D. Johnson, C SE Sec. 20, Blk. 53, T-2, T. & P. Sur., elev. 2,934 ft. ..... Top salt 955 ft.; drlg. 1,150 ft.

LYNN COUNTY

Elpo Oil Co.'s No. 1 Nevols, NW cor. Sec. 6, Blk. C-42, School Lands ..... Shut down 630 ft.
Hart Oil Corp.'s No. 1 C. O. Edwards A-1 ..... Rigging up.

MENARD COUNTY

Carpenter & Robbins' No. 1 Kothman ..... 165 ft. 34.6 grav. oil at 414-15 ft.; shut in.
May & Clark's No. 1 Callan Ranch ..... Drlg. 350 ft.
Renfro et al's No. 1 J. Davis ..... Drlg. 185 ft.

MIDLAND COUNTY

Gholson et al's (was Orbit Oil Co.'s) No. 1 Moreland, C SE Sec. 17, Blk. 39, T. & P. Sur., T-1-S ..... Total depth 185 ft.; to resume drlg.
Shoup et al's No. 1 Roy Parks ..... Location.

MITCHELL COUNTY

Paul Teas et al's No. 1 A. C. Mills, NW cor. C. A. O'Keefe Sub. 11, J. P. Smith Sur. ..... **Drlg. 820 ft.**
Robert Thraves' No. 1 C. Way, Sec. 91, Blk. 27, T. & P. Sur., T-1-N ..... Total depth 2,508 ft.; shut down.

NOLAN COUNTY

Herbert Oil Co.'s (was McClesky and others') No. 1 Pepper, SE cor. SW Sec. 29, Blk. 22, T. & P. Sur. ..... Rigged up and shut down.
Winemiller Corp.'s (was Reiter-Foster Oil Co.'s) No. 1 T. E. Arledge, Sec. 217, Blk. 1, H. & T. C. Sur. ..... Drlg. 2,700 ft.
Zweifel et al's No. 1 Longbotham, C SE Sec. 130, Blk. 1, H. & G. N. Sur. ..... Shut down 3,645 ft.

PECOS COUNTY

George Anderson's No. 1 Sherbine Bros. ..... Underreaming 10-in. 685 ft.
Bob Elmore's No. 2 Holmes ..... Material on ground.
Buell & Hagan's No. 1 Pryor & Wilson ..... Location.
Cummings et al's No. 1 Blackstone & Slaughter ..... Shut down 2,528 ft., contract depth.
Diamond Pet. Co.'s No. 1 Blackstone & Slaughter ..... Location.
M. C. Dibble & Hale's No. 1 Bonebrake, Sec. 115, Blk. 8, H. & G. W. Sur., elev. 2,555 ft. ..... Shut down 640 ft.
Everett et al's No. 1 J. Fields ..... Spudded and shut down.
Gibson Oil Corp.'s No. 1 R. R. Russell ..... Drlg. 455 ft.
George A. Henshaw et al's No. 1 B. T. Corder, C SW Sec. 74, Blk. 2, C. C. S. D. Sur. ..... Shut down 975 ft.
George A. Henshaw, Jr., No. 1 Schimmel, Sec. 29, Blk. 144, T. & St. L. Sur., elev. 2,780 ft. ..... Hole full sulphur water 1,275-80 ft.; shut down for orders 2,506 ft.
Kershaw & Livingston's No. 1 Cannon ..... Rigging up.
Kirby Pet. Co. and Roxana's No. 1 W. W. Turney, NW cor. SW Sec. 11, Blk. 140, T. & St. L. Sur. ..... Hole full sulphur water 975-83 ft.; shut down 1,189 ft.
Mid-Kansas O. & G. Co.'s No. 1 Pryor & Wilson, NW cor. Sec. 3, Blk. 5, T. C. R. R. Sur. ..... Rigged up and shut down.
Miller & McNees' No. 1 W. C. Tyrrell ..... New location.
Moody Oil Corp.'s No. 1 B. T. Corder, C SW Sec. 77, Blk. 2, C. C. S. D. Sur. ..... Shut down 1,700 ft.
Olean Pet. Co.'s No. 1 G. N. Harral, C SW Sec. 82, Blk. R-3, G. C. & S. F. Sur., elev. 3,005 ft. ..... 1,200 ft.; salt water 2,965-78 ft.; set 8-in. 2,977 ft.; shut down 3,521 ft.
Quinby Oil Co.'s No. 1 Townsite, Sec. 1, Blk. 267, Client Addn. Sur. Fort Stockton, elev. 2,980 ft. ..... Shut down 3,440 ft.
Quinby Oil Co.'s No. 2 Bennett, C NW 592, Blk. 105, G. C. & S. F. Sur., elev. 2,560 ft. ..... Cleaning out 1,465 ft.
Quinby Oil Co.'s No. 1 A. A. Gray, 660 ft. N and 1,320 ft. E SW cor. Sec. 593, Abst. 3,009, elev. 2,551 ft. ..... Shut down 700 ft. to deepen.
Red Bank Oil Co.'s and Kirby Pet. Co.'s No. 1 Arthur Harral ..... 3 bbls. salt water in 12 hrs. at 2,745-55 ft.; shut down 3,025 ft.
Robert Lee's No. 1 Joe Parker ..... Rigging up.
B. J. Spikes' No. 1 George Brown ..... Shut down 250 ft.
Transcontinental Oil Co.'s No. 1 Blackstone & Slaughter, Sec. 29, Blk. 129, St. L. Sur., elev. 3,539 ft. ..... 250 ft. sulphur water in black sand 1,150-80 ft.; small show oil 1,510 ft.; show gas 1,540 ft., show oil 2,080 ft.; brown sand 3,560-70 ft.; 250,000 ft. gas at 3,565 ft.; drlg. 4,040 ft.
Vacuum Oil Co.'s No. 1 Elsinore Cattle Co. ..... New location; moving in material.
World Oil Co.'s No. 1 Kloh, Sec. 47, Blk. 45, Twp. 8, T. P. R. R. Sur., elev. 2,810 ft. ..... Rigged up and shut down.
World Oil Co.'s No. 1 Serf, C NE Sec. 10, Blk. 130, T. & St. L. Sur., elev. 3,435 ft. ..... Drlg. 450 ft.

Yates Pool, Pecos County

Allsman & Bell's No. 5 River Bed, 312 ft. N of No. 4 .... Est. 200 bbls. per hour, 50 per cent water; total depth 935 ft.
Allsman & Bell's No. 6 River Bed ..... Waiting on machine.
Allsman & Bell's No. 8 River Bed ..... Drlg. 833 ft.
Allsman & Bell's No. 9 River Bed ..... Driving piling.
Allsman & Bell's No. 10 River Bed ..... Driving piling.
Allsman & Bell's No. 11 River Bed ..... Drlg. 1,480 ft.; anhydrite.
California Co.'s No. 2 Yates, Sec. 34, Blk. 194 ..... Rig.
California Co.'s No. 9 Yates, Sec. 34, Blk. 194 ..... Drlg. 100 ft.
California Co.'s No. 10 Yates, Sec. 34 ..... Rig.
California Co.'s No. 11 Yates, Lease 1 ..... Rigging up.
California Co.'s No. 12 Yates, Lease 1 ..... Rigging up.
California Co.'s No. 1 Smith, Lease 1 ..... Drlg. 530 ft.
California Co.'s No. 6 Smith, Lease 3, Sec. 35 ..... Drlg. 1,425 ft.
California Co.'s No. 7 Smith, Lease 3, Sec. 35 ..... 3,000,000 ft. gas 1,135-42 ft.; top pay 1,145 ft.; flowed 990 bbls.; drlg. 1,216 ft.
California Co.'s No. 8 Smith, Lease 3 ..... Drlg. 1,208 ft.
California Co.'s No. 9 Smith, Lease 3 ..... Drlg. 450 ft.
California Co.'s No. 10 Smith, Lease 3 ..... Rig.
California Co.'s No. 11 Smith, Lease 3 ..... Moving in standard rig.
•Day Bros. & McKnight's No. 1 Yates, NW cor. Sec. 58, Blk. 1 ..... Top salt 440 ft.; snut down 915 ft.
Douglas Oil Co.'s No. 2 J. T. Seliman ..... Total depth 700 ft.; underreaming 10-in.
Gulf Prod. Co.'s No. 5 Smith-A ..... Drlg. 1,430 ft.
Gulf Prod. Co.'s No. 6 Smith-A ..... Drlg. 785 ft.
Gulf Prod. Co.'s No. 7 Smith-A ..... Fish. 12-in. 756 ft.
Gulf Prod. Co.'s No. 8 Smith-A ..... New location; cellar.
Gulf Prod. Co.'s No. 9 Smith-A ..... New location; cellar.
•Gulf Prod. Co.'s No. 4 Yates, Runnels Co. School Land .. Fish. tools 1,380 ft.; flowing 756 bbls. day.
Gulf Prod. Co.'s No. 5 Yates ..... Drlg. 1,355 ft.
Gulf Prod. Co.'s No. 6 Yates ..... Drlg. 1,000 ft.
Gulf Prod. Co.'s No. 7 Yates ..... Cem. 6-in. 1,046 ft.
Humble O. & R. Co.'s No. 6 Smith-A ..... Drlg. 507 ft.
Humble Oil Co.'s No. 4 M. A. Smith-B ..... Snudding.
McMan O. & G. Co.'s No. 2 J. H. Tippett ..... New location.
•Madza and Savoy's No. 2 Smith, Sec. 24, Blk. 194 ..... Location.
McMan and Marland's No. 15 Yates ..... 200 ft. oil at 1,105 ft.; run 6-in. 1,187 ft.
McMan and Marland's No. 16 Yates ..... Rig.
Mid-Kansas and Transcontinental's No. 10 Yates-A, Sec. 33½, Blk. 194 (N of No. 1) ..... Stand. cem. 880 ft.
•Mid-Kansas and Transcontinental's No. 11 Yates-A, Sec. 33½, Blk 194 (S of No. 1) ..... Stand cem. 893 ft.
Mid-Kansas and Transcontinental's No. 12 Yates-A ..... Shut down 435 ft.
Mid-Kansas and Transcontinental's No. 13 Yates-A ..... Shut down 265 ft.
Mid-Kansas and Transcontinental's No. 14 Yates-A ..... Waiting on machine.
Mid-Kansas and Transcontinental's No. 15 Yates-A ..... Waiting on machine.
Mid-Kansas and Transcontinental's No. 10 Yates-B, Sec. 61, Blk. 1 ..... Rigging up.
Mid-Kansas and Transcontinental's No. 11 Yates-B ..... Rigging up.
•Mid-Kansas and Transcontinental's No. 12 Yates-B ..... Cellar.
Mid-Kansas and Transcontinental's No. 18 Yates-B ..... Show oil 1,095 ft.; flowed sulphur water 1,108 ft.; cem.
Mid-Kansas and Transcontinental's No. 19 Yates-B ..... Shut down 735 ft.
Mid-Kansas and Transcontinental's No. 20 Yates-B ..... Shut down 975 ft.
Mid-Kansas and Transcontinental's No. 21 Yates-B ..... Shut down 335 ft.
Mid-Kansas and Transcontinental's No. 22 Yates-B ..... Cellar.
Mid-Kansas and Transcontinental's No. 23 Yates-B ..... Shut down 400 ft.
Mid-Kansas and Transcontinental's No. 24 Yates-B ..... Driving 15-in. casing 130 ft.
Mid-Kansas and Transcontinental's No. 25 Yates-B ..... Shut down 20 ft.
Mid-Kansas and Transcontinental's No. 6 Yates-C ..... Waiting on machine.
Mid-Kansas and Transcontinental's No. 10 Yates-C ..... Location.
Mid-Kansas and Transcontinental's No. 2 M. A. Smith .. Set 8-in. 905 ft.; shut down 1,045 ft.
Mid-Kansas and Transcontinental's No. 2 Yates-D, SW part Sec. 62, Blk. 1 ..... Set 6-in. 1,017 ft.; shut down 1,090 ft.
Mid-Kansas and Transcontinental's No. 1 Yates-F ..... New location; rigging up.
Mid-Kansas and Transcontinental's No. 7 Smith-Taylor.. Rigging up.
Mid-Kansas and Transcontinental's No. 8 Smith-Taylor.. Shut down 370 ft.
Mid-Kansas and Transcontinental's No. 9 Smith-Taylor.. Waiting on machine.
Mid-Kansas and Transcontinental's No. 10 Smith-Taylor.. Rigging up.
Oregon Oil Corp.'s No. 1 Yates ..... Spudded 50 ft.
Phillips Pet. Co.'s No. 1 Mrs. M. A. Smith ..... New location; rigging up.
Sun Oil Co.'s No. 1 Yates ..... New location; drlg. 50 ft.
Roxana Pet. Corp.'s No. 6 J. H. Tippett, Sec. 102, Blk. 194 ..... Drlg. 605 ft.
Roxana Pet. Corp.'s No. 7 J. H. Tippett ..... Top pay 1,180 ft.; drlg. 1,200 ft.; flowing 265 bbls. per hour open.
Roxana Pet. Corp.'s No. 3 Smith, SE cor. SW Sec. 27, Blk. 194 ..... Drlg. 1,515 ft.
Roxana Pet. Corp.'s No. 4 Smith ..... Set 6-in. 1,461 ft.; drlg. 1,610 ft.
Roxana Pet. Corp.'s No. 5 M. A. Smith, Sec. 27, Blk. 194.. Drlg. 890 ft.
Simms Oil Co.'s No. 4 Smith, Sec. 103, Blk. 194 ..... Drlg. 730 ft.
Simms Oil Co.'s No. 5 Smith ..... Drlg. 650 ft.
Simms Oil Co.'s No. 6 Smith ..... 8,000,000 ft. gas at 1,045 ft.; total depth 1,074 ft.; run. 8-in.

PRESIDIO COUNTY

Headlock & Miller's No. 1 Tootle Est., Sec. 123, Blk. 3, D. & P. Sur., elev. 2,912 ft. ..... Salt water 2,610 ft.; total depth 3,003 ft.; shut down for orders.
Pinto Canyon Oil Co.'s No. 1 Fields, 1,760 ft. S and E NW cor. Sec. 74, Blk. 2, D. & P. Sur. ..... Location.
Moody Oil Corp.'s No. 1 R. A. Walters et al ..... New location; moving in material.

REAGAN COUNTY

Henshaw & Camp's No. 1 University, Sec. 14, Blk. 49, University Land, elev. 2,772 ft. ..... 250 ft. sulphur water at 800 ft.; cem. 8-in. 2,205 ft.
Skelly Oil Co.'s No. 1 University, SW cor. Sec. 33, Blk. 8, University Land ..... Top salt 1,340 ft.; fishing 2,795 ft.
Texon O. & L. Co.'s No. 1-B University, Group 1 ..... Top pay 6,284 ft.; drlg. 6,950 ft.; 1,500 ft. oil in hole.
White et al's No. 1 Shofner & Sterling, NE cor. NW. Sec. 10, 2 m. N of Big Lake ..... Top salt 1,275 ft.; drlg. 1,575 ft.

REEVES COUNTY

Exploration Co.'s No. 1 A. A. Kinney, 1,500 ft. W of NE cor. Sec. 26, Blk. C-18, Public School Land, elev. 2,847 ft. ..... Show oil 1,105-10 ft.; 10-in. casing froze 1,340 ft.; run. 8in.
Grisham-Hunter Corp.'s No. 1 Rathge & Connor, 600 ft. from N line and 5,760 ft. from W line of Sec. 26, Blk. 2, H. & G. N. ..... Drlg. 100 ft.
David R. Thompson's No. 1 A. A. Eddins ..... Total depth 4,170 ft.; recovered bit.
Vacuum Oil Co.'s No. 1 Grisham-Hunter ..... Building rig.
World Oil Co.'s No. 1 Biggs, C SE Sec. 85, Blk. 112, Public School Land Sur., elev. 3,068 ft. ..... Shut down 1,657 ft.
World Oil Co.'s No. 1 Duff, 1,500 ft. from S and 850 ft. from NE lines, R. S. Johnson Sur. No. 68, elev. 2,774 ft. ..... Top Delaware lime 4,185 ft.; hole full brackish salt water 4,368-4,500 ft.; plugged back to 4,237 ft.; shot 70 qts. 4,185-4,225 ft.; little oil in hole; cleaning out.

RUNNELS COUNTY

Empire G. & F. Co.'s No. 1 C. C. Clay ..... Hole full salt water 2,250-57 ft.; Shut down 2,365 ft.
Gibson & Johnson's No. 1 Harris Est., Juliana Voske Cabrera Sur. ..... Location.
Gibson & Johnson's No. 1 H. P. Serratt, C SE NW Sec. 150, E. T. R. R. Sur. ..... Rig up.
Kennedy et al's No. 1 J. E. Tally ..... Shut down 1,720 ft.
May et al's No. 1 J. M. Schneider, John Wall Sur. ..... ½ bailer salt water 1,032 ft.; hole full water 1,100-20 ft.; run. 8-in. 1,125 ft.
Miles Oil Co.'s No. 1 Charles Ray, Sec. 21, T. & N. O. Sur. ..... Cellar and machine.
Miles Oil Co.'s No. 1 L. S. Lawhon, NE cor. Sec. 68, ... Show gas 960-80 ft.; shut down for 6-in. 2,310 ft.
Noble O. & G. Co.'s No. 1 Sims, Sec. 12, J. J. McHenry Sur. ..... Hole full sulphur water 2,710-20 ft. and hole full salt water 2,820 ft.; shut down 3,506 ft.
Royal Pet. Co.'s No. 1 A. C. Willingham ..... Shut down 450 ft.
Sillix Pet. Co.'s No. 1 Malone ..... Location.
Swensondale Oil Co.'s No. 1 E. A. Werner ..... Drlg. 1,960 ft.
Vacuum Oil Co.'s No. 2 R. M. McMillan ..... Building rig.
Watchorn O. & G. Co.'s No. 1 J. L. King ..... Hole full salt water 1,683-91 ft.; Underreaming 8-in. 1,996 ft.

SCHLEICHER COUNTY

Beavers & Leath et al's No. 1 J. A. and W. T. Whitten, C NW Sec. 35, Blk. 11, T. C. Sur. ..... Shut down 400 ft.
Thomas Grey et al's No. 1 Ball Robinson, C NW Sec. 25, Blk. M., G. H. & S. A. Sur. ..... Sulphur water 2,125 ft.; hole full water 2,160-80 ft. and 2,935 ft.; total depth 3,150 ft.

SCURRY COUNTY

J. B. Mims et al's No. 1 J. J. Koonsman, Sec. 220, Blk. 2, H. & T. C. Sur. ..... Rig.

STERLING COUNTY

Orr et al's No. 1 Neal Reed, CNL Sec. 15, Blk. 30, W. & N. W. Sur. ..... Shut down 1,390 ft. (cor.)

SUTTON COUNTY

National Potash Co.'s No. 1 J. N. Ross ..... Coring lime 950 ft.

TAYLOR COUNTY

A. J. Brown et al's No. 1 Henslee, NE cor. Sec. 5, Blk. 4, S. P. R. R. Survey ..... Shut down 2,360 ft.
Dorning & Perrine's No. 1 J. A. Hammer, C. N. 100 acres, Sec. 23, Blk. 19, T. & P. Sur., elev. 1,904 ft. .... Shut down 455 ft.
Gilbert Johnson and Day Bros.' No. 1 C. M. Brown, Sec. 1, Blk. 5, T. & P. Sur. ..... Straightening hole 835 ft.
Owen & Sloan's No. 1 Lattimer, Sec. 14, Blk. 9, T. & P. Sur. ..... Drlg. 2,775 ft.
Roeser & Pendleton's No. 1 Sam Hutman, C W half NW Sec. 64, Blk. 5, T. & P. Sur. ..... Water sand 2,222 ft.; hole full water 3,025-80 ft.; total depth 3,110 ft.; underreaming 5-in.

TERRELL COUNTY

Big Bend Oil Co.'s No. 1 Bassett ..... Location.
Champlin Ref. Co.'s No. 1 Corder, C Sec. 110, Blk. 1, C. C. S. D. Sur. ..... Rig.
Deep Rock Oil Co.'s No. 1 H. C. Nolke, Sec. 4, Blk. A-2, T. C. R. R. Sur. ..... Rig.
Humble Oil Co.'s No. 1 University, Sec. 15, Blk. 34 ..... Drlg. 115 ft.
Milham Exploration Co.'s No. 1 Bassett, Sec. 77, Blk. Y, W. H. Robertson Sur. ..... Underreaming 10-in. 1,275 ft.

TERRY COUNTY

Kingsland O. & P. Co.'s No. 1 Brownfield, C NW SW SW Sec. 7, Blk. 1-A, E. L. R. R. Sur. ..... Slight show gas 2,230 ft.; run. 6-in. 3,207 ft.; will deepen.

TOM GREEN COUNTY

George Amery's No. 1 Wilkey, C SW Sec. 3, B. A. L. Sur. ..... Location.
Collins et al's No. 1 Jones, CSL Sec. 646, Shaffer Sur. .... Rig.
Cox et al's No. 1 Llano ..... Total depth 470 ft.; shut down.
Fitzgerald & Taliaferro's No. 1 Bennett ..... Shut down 1,885 ft.
Marland Oil Co.'s No. 1 J. W. Johnson, C SE Sec. 6, R. B. Sanderson Sur. ..... Hole full water 2,020-45 ft.; fished out line 2,830 ft.; setting 6-in. 3,125 ft.
Marland Oil Co.'s No. 1 J. W. Johnson-A ..... Setting 6-in. 2,666 ft.
Tulsa Oil Co.'s No. 1 Adams, C SW Sec. 163, Blk. 11, S. P. R. R. Sur. ..... Shut down lime 1,020 ft.
Haulbert et al's No. 1 Johnson ..... Shut down 850 ft.

UPTON COUNTY

Mark Curtis et al's (was Hultz et al's) No. 2 Giddings, 5,336 ft. S and 6,678 ft. E of NW cor. Throckmorton Co. School Land, League 1, elev. 2,757 ft. ..... Drlg. 700 ft.
Southern C. O. P. Co.'s No. 1 C. W. Hobbs ..... Flowed sulphur water 2,340-80 ft.; drlg. 2,790 ft.

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To enable oil operators to secure sufficient dependable insurance to adequately protect their interests.

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Complete details of the Oil Insurance Association may be obtained from your insurance agent or broker.

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The Texas Company and Cordova Union's No. 1 Union Land, Sec. 23, Blk. 35, H. & T. C. ..... Top pay 2,098 ft.; swabbed 60 bbls. in 36 hrs. at 2,271 ft., 2 per cent water; 2,200 ft. sulphur water 2,390-2,405 ft.; drlg. 2,671 ft., gray lime; hole full water.

Wise & Jackson's No. 1 J. H. Porter, SW cor. SW SW Sec. 184, Blk. E, elev. 2,592 ft. ..... Top pay 3,419 ft.; total depth 3,517 ft., gray lime; shut down.

VAL VERDE COUNTY

A. Blume et al's No. 1 Moore Est., Sec. 183, J. Mitchell Sur., elev. 953 ft. ..... Shut down 3,000 ft.

Curso Williams' No. 1 Holman, NE NE Sec. 5, Blk. N, G. H. & S. A. Sur. ..... Shut down 2,940 ft.

East Del Rio Oil Co.'s No. 1 Russell, SE cor. Sec. 183, Del Rio Town Sur., elev. 941 ft. ..... Total depth 3,190 ft.; shut down.

Magnolia Pet. Co.'s No. 1 Whitehead, Sec. 81, D. G. C. & S. F. Sur., elev. 1,770 ft. ..... Drlg. 5,580 ft.

Independent Operators' No. 1 Whitehead, SE SE Sec. 30, Blk. 4, I. & G. N. Sur., elev. 1,175 ft. ..... Shut down 3,900 ft.

O. O. Owens' No. 1 Mills, Sec. 128, Blk. 1, I. & G. N. Sur., elev. 2,130 ft. ..... Gas sand (2,491-2,520 ft.; tested 125,750 ft. gas; reset 8-in. 2,511 ft.; drlg. 3,990 ft.

W. B. Thraves et al's No. 1 W. E. Wilson ..... Drlg. 700 ft.

WARD COUNTY

Selby Oil Co. et al's No. 1 A. G. Dooley et al, Sec. 85, Blk. A, G. M. M. & A. Sur. ..... Drlg. 400 ft.

WINKLER COUNTY

Amerada Pet. Corp.'s No. 1 J. B. Walton, SW cor. NW Sec. 48, Blk. 26, elev. 2,833 ft. ..... Top salt 1,086 ft.; 2,500,000 ft. gas 1,700-08 ft.; killed gas with 3¼ tons baroid; cored brown lime carrying oil 2,334 ft.; show gas 2,400 ft.; unscrewed 8-in. below tools; gas blew out tools and 700 ft. casing, wrecking rig; now running wild, est. 50,000,000 ft. gas.

Atlantic O. P. Co.'s No. 1 Ida Hendrick-B, SE cor. W half NE Sec. 44, Blk. 26 ..... Show gas 2,770 ft.; top pay 2,830 ft.; fish. bit 2,936 ft.; aver. 246 bbls. past week.

Atlantic O. P. Co.'s No. 2 Grisham-Hunter-A, Sec. 34, Blk. B-5 ..... Total depth 3,000 ft.; small show oil; cleaning out to shoot.

Atlantic O. P. Co.'s No. 3 Grisham-Hunter-A, Sec. 34, Blk. B-5 ..... Topped salt 1,315 ft.; cem. 8-in. 2,534 ft.

Atlantic O. P. Co.'s No. 4 Grisham-Hunter-A, Sec. 34, Blk. B-5 ..... Top salt 1,470 ft.; drlg. 1,475 ft.

Atlantic O. P. Co.'s No. 1 Grisham-Hunter-C (was Lemar) SW cor. Sec. 40, Blk. B-5 ..... Shut down 2,805 ft.; salt water flowing out between casing from Republic's No. 1-B.

Atlantic O. P. Co.'s No. 1 Grisham-Hunter-E, SW cor. N half NE Sec. 41, Blk. B-5 ..... Drlg. 2,540 ft.

Atlantic O. P. and Collett's No. 1 Ida Hendrick-F, NE cor. W half NW Sec. 40, Blk. 26 ..... Drlg. 1,780 ft.

V. T. Bolin et al's No. 1 Brown ..... Spudded and shut down.

Magnolia Pet. Co.'s (was G. M. Church et al's) No. 2 Ida Hendrick ..... Show oil 2,750 ft.; top pay 2,865 ft.; deepened from 2,955 ft. to 2,961 ft., flowing 90 per cent water.

Magnolia Pet. Co.'s No. 3 Ida Hendrick ..... Cem. 8-in. 2,425 ft.; drlg. 2,575 ft.

Cranfill Bros. and California Co.'s No. 1 M. J. Bashara, et cor. Secs. 10, 11, 22 and 23, School Blk. 77 ..... Total depth 3,503 (s.l.m.); shut down for orders.

Cranfill & Reynold's No. 1 Grisham-Hunter-B, Sec. 35, Blk. B-5 ..... Show oil 2,650-55 ft.; top pay 2,845 ft.; drlg. 3,068 ft.; flowing aver. 160 bbls.

Cranfill & Reynolds' No. 1 Hendrick-C ..... Drlg. 1,600 ft.

Eastland Oil Co. and Arnold's No. 1, Sec. 35, Blk. B-5 .. Show oil 2,675 ft.; shut down 2,755 ft.; est. 20,000,000 ft. gas and spraying oil; flowing water between casing from Republic's No. 1-B.

Gulf Prod. Co.'s No. 2 T. G. Hendrick, NE NW NW Sec. 34, Blk. B-5 ..... Rig standing.

Gulf Prod. Co.'s No. 8 T. G. Hendrick, Sec. 34 ..... Total depth 1,641 ft.; cem. top casing; flowed 16,000 bbls. fresh water but quit Saturday.

Gulf Prod. Co.'s No. 9 T. G. Hendrick, Sec. 34 ..... Drlg. 917 ft.

Gulf Prod. Co.'s No. 10 T. G. Hendrick, SW cor. NE Sec. 45, Blk. 26 ..... Rigged up.

Humble O. & R. Co.'s No. 1 T. G. Hendrick, NW cor. NE Sec. 34, Blk. B-5, Public School Land, elev. 2,816 ft. ..... Total depth 2,927 ft., porous lime; reaming.

Humble O. & R. Co.'s No. 3 Hendrick, Sec. 34, Blk. B-5 .. 5,000,000 ft. gas from 2,195 ft.; spraying 25 bbls. oil and est. 20,000,000 ft. gas at 2,898 ft.; shut down.

Humble O. & R. Co.'s No. 5 Hendrick, SW cor. NE Sec. 34, Blk. B-5 ..... Top lime 2,398 ft.

Humble O. & G. Co.'s No. 2 Ida Hendrick, Sec. 29 ..... Cem. 12-in. 262 ft.; shut down 265 ft.

Independent O. & G. Co.'s No. 3 Grisham-Hunter, Sec. 34.. Location.

Independent O. & G. Co.'s No. 4 Grisham-Hunter ..... Location.

Independent O. & G. Co.'s No. 5 Grisham-Hunter ..... Top salt 1,541 ft.; drlg. 1,815 ft.

Independent O. & G. Co.'s No. 6 Grisham-Hunter ..... Top salt 1,450 ft.; drlg. 1,560 ft.

Independent O. & G. Co.'s No. 7 Grisham-Hunter ..... Drlg. 2,300 ft.

Independent O. & G. Co.'s No. 8 Grisham-Hunter ..... Drlg. 230 ft.

Independent O. & G. Co.'s No. 2 Grisham-Hunter ..... Top pay and total depth 2,815 ft.; making 229 bbls., pinched.

Independent O. & G. Co.'s No. 1 Vardeman-B, SE cor. E half NW Sec. 41, Blk. B-5 ..... Top salt 1,775 ft.; top pay 2,575 ft.; total depth 2,680 ft.; flowed 210 bbls.; to deepen.

Independent O. & G. Co.'s No. 2 Vardeman-B ..... Shut down 486 ft.

Independent O. & G. Co.'s No. 3 Vardeman-B ..... Derrick.

Liner Drlg. Co.'s No. 1 Seth-Campbell, NE cor. Sec. 2, Blk. B-5 ..... Shut down 450 ft.

Landreth Prod. Corp.'s No. 1 Hendrick-A, SE cor. SW Sec. 29, Blk. B-5 ..... Total depth 3,013 ft.; aver. 36 bbls. daily past week; clean. out to deepen; fish. for bit.

Landreth and Roxana's No. 2 Ida Hendrick-A, Sec. 29, Blk. B-5 ..... Partly rigged and shut down.

Landreth and Roxana's No. 3 Ida Hendrick-A, Sec. 29, Blk. B-5 ..... Drlg 2,370 ft.

Magnolia Pet. Co.'s No. 3 Ida Hendrick ..... Drlg. 2,620 ft.

Magnolia Pet. Co.'s No. 4 Ida Hendrick, Sec. 29, Blk. B-5 ..... Drlg. 2,550 ft.

Magnolia Pet. Co.'s No. 5 Ida Hendrick ..... Top salt 1,624 ft.; drlg. 2,110 ft.

Magnolia Pet. Co.'s No. 6 Ida Hendrick, Sec. 29, Blk. B-5 ..... Drlg. 950 ft.

Murchison Oil Co. et al's No. 1 Grisham-Hunter-B, NE, cor. SW SW Sec. 35, Blk. B-5 ..... Standing 2,427 ft.

Murchison Oil Co. et al's No. 2 Grisham-Hunter-B ..... Location.

Murchison Oil Co. et al's (was Marland Oil Co.'s) No. 4 Grisham-Hunter-B ..... Rigging up cable tools 2,851 ft.

Mining & Engineering Co.'s No. 1 T. G. Hendrick, Sec. 10, Blk. B-12 ..... Partly rigged and shut down.

Murchison Oil Co. and Cranfill Bros.' No. 2 Grisham-Hunter-A ..... Location.

Murchison Oil Co. and Cranfill Bros.' No. 4 Grisham-Hunter ..... Preparing to standardize 2,855 ft.

The Texas Company's (was Pure Oil Co.'s) No. 2 Hendrick, elev. 2,827 ft. ..... Top salt 1,518 ft.; top lime 2,390 ft.; spraying oil with 15,000,000 ft. gas 2,657-2,825 ft.; flowed 85 bbls. first hr. from 2,657-2,880 ft.; top big pay 2,875 ft.; shut down 2,889 ft.

The Texas Company's (was Pure Oil Co.'s) No. 3 Hendrick, NE cor. SW Sec. 41, Blk. B-5 ..... Drlg. 2,710 ft.

The Texas Company's (was Pure Oil Co.'s) No. 1 Hendrick-B, NE cor. SE Sec. 34, Blk. B-5 ..... Show gas 2,350-60 ft.; show oil 2,380 ft.; 15,000,000 ft. gas at 2,490 ft.; more gas 2,564 ft.; 40,000,000 ft. gas at 2,720 ft., will run 6-in. 2,731 ft.

The Texas Company's (was Pure Oil Co.'s) No. 2 Hendrick-B ..... Top lime 2,387 ft.; top pay 2,866 ft.; flow. small heads; shut down for orders 2,866 ft.

The Texas Company's (was Pure Oil Co.'s) No. 3 Hendrick-B ..... Cem. 8-in. 2,438 ft.; 6,000,000 ft. gas 2,600 ft.; shut down for orders 2,860 ft.

The Texas Company's (was Pure Oil Co.'s) No. 4 Hendrick-B ..... Drlg. 2,047 ft.

The Texas Company's No. 5 Hendrick-B, SE SW SE Sec. 34, Blk. B-5 ..... Drlg. 200 ft.

The Texas Co.'s (was Pure Oil Co.'s) No. 6 Hendrick-B.. Spudding 30 ft.

The Texas Company's No. 1 Grisham-Hunter-C ..... Drlg. 952 ft.

Republic Prod. Co.'s No. 1-A Grisham-Hunter-B, SW cor. E half SE Sec. 41, Blk. B-5 ..... Fish. drill pipe 2,036 ft.

Republic Prod. Co.'s No. 2 Grisham-Hunter-B ..... Shut down 2,680 ft.; water blowing out between casing from No. 1-B.

Republic Prod. Co.'s No. 2 Hendrick-A, NE E half SW Sec. 45, Blk. 26 ..... Rigging up rotary.

Roxana Pet. Corp.'s No. 1 Grisham-Hunter-A, SW cor. E half NW Sec. 45, School Blk. 26 ..... Top lime 2,428 ft.; pinched to 440 bbls.; total depth 2,828 ft.

Roxana Pet. Corp.'s No. 2 Grisham-Hunter-A, SE cor. E half NW Sec. 45, Blk. 26 ..... Drlg. 440 ft.

Roxana Pet. Corp.'s No. 1 Grisham-Hunter-B, SW cor. S half SE Sec. 29, Blk. B-5 ..... Top lime 2,657 ft.; show oil and gas 2,630 ft.; drlg. 3,010 ft.

Roxana Pet. Corp.'s No. 2 Grisham-Hunter-B ..... Shut down 1,302 ft.

Roxana Pet. Corp.'s No. 3 Grisham-Hunter-B ..... Rigged up and shut down.

Roxana Pet. Corp. No. 2 Grisham-Hunter-C, SE cor. N half NW Sec. 29, Blk. B-5 ..... Top salt 1,405 ft.; showed oil 2,880-83 ft., 2,910-14 ft. and 2,919-36 ft.; top pay 2,948 ft.; total depth 2,989 ft.; flowed 320 bbls. per hr. open, 33 per cent water; pinched to 3,540 bbls., 2 per cent water.

Roxana Pet. Corp.'s No. 3 Grisham-Hunter-C ..... Top salt 1,571 ft.; top lime 2,527 ft.

Roxana Pet. Corp.'s No. 4 Grisham-Hunter-C ..... Drlg. 2,317 ft.

Roxana Pet. Corp.'s No. 5 Grisham-Hunter-C ..... Drlg. 1,650 ft.

Roxana Pet. Corp.'s No. 1 Grisham-Hunter-D, SW cor. S half NE Sec. 41, Blk. B-5 ..... Show oil and gas 2,504 ft.; mixing mud to kill gas, est. 50,000,000 ft.; total depth 2,712 ft.

Roxana Pet. Corp.'s No. 2 Grisham-Hunter-D ..... Reaming hole 657 ft.

Sheldon & Burden's No. 1 Ida Hendrick, SW cor. SE Sec. 28, Blk. B-5 (10-a. tract) ..... Top salt 1,260 ft.; top lime 2,609 ft.; show oil 2,720 ft. and 2,820 ft.; drlg. 2,785 ft.; making 20 bbls.

Southern C. O. P. Co.'s No. 2 Ida Hendrick T-88-B .... Total depth 2,659 ft.; cem. 6-in. in lime; stand. cem.

Southern C. O. P. Co.'s No. 2 T-89 Grisham-Hunter-A, Sec. 35, Blk. B-5 ..... Standardizing 2,301 ft.

Southern C. O. P. Co.'s No. 3 T-89-A Grisham-Hunter-A.. Shut down 2,352 ft. (cor.).

Southern C. O. P. Co.'s No. 4 T-89-A Grisham-Hunter-A.. Location; rotary moved away.

Texon O. & L. Co.'s No. 2 Grisham-Hunter-A ..... 5,000,000 ft. gas 2,260-2,500 ft.; 15,000,000 ft. gas 2,646-56 ft.; total depth 2,725 ft.; rig was wrecked when gas blew tools out of hole; est. 20,000,000 ft. gas through two 4-in. lines.

Texon O. & L. Co.'s No. 3 Grisham-Hunter-A, NW cor. W half SE Sec. 41, Blk. B-5 ..... Drlg. 2,155 ft.

Texon O. & L. Co.'s No. 1 Grisham-Hunter-B, NW cor. W half SW Sec. 45, School Blk. 26 ..... Cem. 6-in. 2,562 ft.; standardizing.

Texon O. & L. Co.'s No. 2 Grisham-Hunter-B, NE W half SW Sec. 45, Blk. 26 ..... Cem. 8-in. 2,506 ft.; drlg. 2,610 ft.; small show gas.

White Eagle O. & R. Co.'s (was Gibson & Johnson's) No. 1 P. A. Lock, 1,320 ft. W of NE cor. Sec. 30, Blk. 74, NW of discovery well, elev. 2,830 ft. ..... Total depth 3,260 ft.; shut down after trying to cem. off baller.

Southern C. O. P. Co.'s No. 1 Ida Hendrick 3-T-67-A, C SW NW NE Sec. 4, Blk. B-12, elev. 2,784 ft. ..... Top lime 2,638 ft.; slight show oil 3,000-08 ft.; filled up 1,500 ft. sulphur water at 3,065-72 ft.; plugged back to 3,050 ft.; water now shut off; shut down waiting orders.

Southern C. O. P. Co.'s No. 2 Ida Hendrick 3-T-67-A .... Standardizing 2,646 ft. and shut down.

Southern C. O. P. Co.'s No. 2 T-67 Ida Hendrick-F ..... Top salt 1,715 ft.; cem. 6-in. 2,207 ft.

Southern C. O. P. Co.'s No. 3 T-67 Ida Hendrick-F ..... Top salt 1,702 ft.; drlg. top lime 2,688 ft.

Southern C. O. P. Co.'s No. 4 T-67 Ida Hendrick-F ..... Top salt 1,800 ft.; top lime 2,700 ft.

Southern C. O. P. Co.'s No. 5 T-67 Ida Hendrick-C ..... Drlg. 2,044 ft.

Southern C. O. P. Co.'s No. 1 T-67 Hendrick-B, NE cor. SE Sec. 24, Blk. 26 ..... Top salt 2,210 ft.; top lime 2,645 ft.; total depth 2,648 ft.; drlg. 2,910 ft.

Southern C. O. P. Co.'s No. 2 T-67 Hendrick-B ..... Moving in rig.

Southern C. O. P. Co.'s No. 1 Hendrick 3-T-68-A, SW cor. W half NW Sec. 35, Blk. B-5 ..... Top salt 1,365 ft.; top lime 2,303 ft.; top pay 2,440 ft.; shut down 2,740 ft.; no production; tools bridged hole; est. 90,000,000 ft. gas.

Southern C. O. P. Co.'s No. 2 Hendrick 3-T-68-A ..... Standardized 2,288 ft. and shut down; water blowing out between casing from Republic's No. 1-B.

Southern C. O. P. Co.'s No. 3 Hendrick 3-T-68-A ..... First gas 2,400 ft.; 8,000,000 ft. gas 2,420 ft.; rig burned Jan. 4; water blowing out between casing.

Southern C. O. P. Co.'s No. 1 T-88 Ida Hendrick-C, NW cor. Sec. 28, Blk. B-5 ..... 6,000,000 ft. gas 2,665 ft.; total depth 2,875 ft.; recovered tools; cleaning out.

Southern C. O. P. Co.'s No. 4 Ida Hendrick, T-88-C ..... Cem. 6-in. 2,586 ft. and shut down.

Southern C. O. P. Co.'s No. 5 Ida Hendrick, T-88-C ..... Standardizing 2,528 ft.

Southern C. O. P. Co.'s No. 6 Ida Hendrick, T-88-C ..... Cem. 6-in. 2,528 ft.

Southern C. O. P. Co.'s No. 7 Ida Hendrick, T-88-C ..... Standardizing 2,435 ft. and shut down.

Turman & Maxwell's No. 1 Ida Hendrick ..... Shut down for tankage 2,879 ft.; flows about 35 bbls. and 5,000,000 ft. gas.

Turman & Maxwell's No. 2 Ida Hendrick ..... 10,000,000 ft. gas 2,865 ft.; drlg. 2,910 ft.; aver. 800 bbls. past wk.

Turman & Maxwell's No. 3 Ida Hendrick, E half NE Sec. 29, Blk. B-5 ..... Shut down 2,585 ft.

Turman & Maxwell's No. 4 Ida Hendrick ..... Spudding.

Turman & Maxwell's No. 5 Hendrick, SE cor. E half NE Sec. 29, Blk. B-5 ..... Drilling 500 ft.

Turman & Maxwell's No. 6 Hendrick, NW cor. E half NE Sec. 29, Blk. B-5 ..... Rig on ground.

Turman & Maxwell's No. 7 Hendrick ..... Stand. cem. 2,375 ft.

Turman & Maxwell's No. 8 Hendrick ..... Location.

Southern C. O. P. Co.'s No. 1 Ida Hendrick, T-88-G, SW SE Sec. 28, Blk. B-5 ..... Location; moved material away.

Southern C. O. P. Co.'s No. 1 T-88 Hendrick-H ..... Moving in rotary.

Southern C. O. P. Co.'s No. 2 T-88 Hendrick-H ..... Location.

Southern C. O. P. Co.'s No. 2 T-88 Hendrick-A ..... Building rig.

Southern C. O. P. Co.'s No. 1 Ida Hendrick, T-88-I, SE cor. E half NE Sec. 30, Blk. B-5 ..... Cem. 6-in. 2,661 ft.

Southern C. O. P. Co.'s No. 1 E. G. Hutchings, T-90, NE cor. E half SE Sec. 47, Blk. 26, elev. 2,835 ft. ..... Top salt 935 ft.; top lime 2,340 ft.; run. 8-in.; will cem. with 500 sacks.

Gibson-Johnson & Kesler-Logan's No. 1 Daugherty, SW cor. NE SW Sec. 3, Blk. 74, School Land ..... Moving in material.
Llano Oil Co.'s No. 1 F. B. Armstrong, at common cor. Secs. 12, 13, 18, and 19, Blk. B-6, School Land. ..... Location.
Roxana Pet. Corp. and Llano Oil Co.'s No. 2 W. F. Scarborough, SW cor. NE Sec. 1, Blk. C-22, School Land ..... Rigging up.

WILDCAT OPERATIONS IN PANHANDLE

(Continued from Page 38)

Gulf's No. 3 Bowers, 330 ft. from SE cor. W half, Sec. 89 ..... 5,000,000 ft. gas, 2,750-80 ft.
Gulf's No. 2 Holmes, SE cor. NE, Sec. 107, Blk. 3, I. & G. N. Sur. ..... Drlg., 420 ft.
Gurnsey Oil Co.'s No. 1 B. E. McKinney, 1,980 ft. E. and 800 ft. N. of SW. cor. Sec. 163, Blk. 3, I. & G. N. Sur. ..... 15,000,000 ft. gas, 3,026-3,110 ft; drlg., 3,132 ft.
Gurnsey Oil Co.'s No. 2 B. E. McKinney, Sec. 163, Blk. 3, I. & G. N. Sur. ..... Drlg., 500 ft.
Collins & Gardners (formerly Lefors Pet. Co.'s) No. 1 J. Shaw, Lefors townsite ..... 10,000,000 ft. gas, 2,440-50 ft; 70,000,000 ft. gas, 2,625 ft; T.D., 2,650 ft; trying to pull 8-in. and it parted; rigging up.
M. O. & G. Oil Co.'s (formerly H. C. McCauley et al's) No. 1 J. Morse, Sec. 2, Blk. 46, H. & G. N. Sur. .... Top lime, 1,770 ft; 10,000,000 ft. of gas at 2,352-65 ft., show of oil 2,400 ft; gas inc. 2,000,000 ft., 2,435 ft; avgd. 107 bbls. 2,-510-11½ ft; waiting connection.
McAuley et al's No. 1 Morse, SE cor. N half, Sec. 3, Blk. 26, H. & G. N. Sur. ..... Location.
Empire G. & F. Co.'s No. 1 Bender, SE cor. Sec. 164, Blk. 3, I. & G. N. Sur. ..... Rig.
Majestic Oil Co.'s No. 4 J. B. Bowers, SW cor. E half, Sec. 92, Blk. B-2 ..... Location.
Magnolia Pet. Co.'s No. 1 J. Bowers ..... Straightening crooked hole, 2,070 ft.
Magnolia Pet. Co.'s No. 1 J. J. Wall, NE cor. Sec. 162, Blk. 3, I. & G. N. Sur. ..... Drlg., 842 ft.
McMan Oil & Gas Co.'s No. 1 Osborne, NE cor. W half SE, Sec. 86, Blk. 3, I. & G. N. Sur. ..... Rigging up.
Midwest Explt'n. Co.'s No. 1 J. Bowers, NW cor. W half SW, Sec. 63, Blk. B-2, H. & G. N. Sur. ..... Topped G.W., 2,785 ft; show oil, 2,958 ft; flowed 810 bbls. first 24 hrs., 3,054-64 ft; may complete here.
Midwest Explt'n. Co.'s No. 1 L. Holmes, Sec. 86, Blk. 3, I. & G. N. Sur. ..... Fish., 930 ft.
Neudigate et al's No. 1 A. Chapman, NE cor. E ½, SE, Sec. 52, Blk. 25 ..... 500,000 ft. gas, 2,760-65 ft; rainbow of oil, 2,820-25 ft; salt wtr; G.W., 2,827-28 ft; S.D., 2,835 ft.
Operators Oil Co.'s No. 1 Jackson ..... Flowed 1,800 bbls. in 24 hrs. from beat G. W. pay, 2,967-84 ft., running 5-in to 2,990 ft. S. L. M. C.O.
Operators Oil Co.'s No. 2 W. Jackson, NW cor. N ½ NE, Sec. 88, Blk. B-2 ..... Rigged and S.D.
Phillips Pet. Co.'s No. 1 Davidson (Myson) ..... Drlg., 1,000 ft.
Phillips Pet. Co.'s No. 1 W. Jackson (was Clark et al's No. 2) ..... S.O., 2,890 ft; swab. 240 bbls. daily, 2,905-39 ft.
Phillips Pet. Co.'s No. 2 W. Jackson (was Clark et al's No. 3) ..... T.D., 2,994 ft; gas broke in; no oil.
Phillips Pet. Co.'s No. 3 W. Jackson ..... Drlg., 1,600 ft.
Phillips Pet. Co.'s No. 1 Jackson-Riley (was Clark et al's No. 1 W. Jackson) ..... 7,000,000 ft. gas, 2,442-2,545 ft; swabbed 160 bbls. at 2,981 ft. S. D. 2,942-54 ft.
Phillips Pet. Co.'s No. 2 Jackson-Riley ..... Drlg., 2,310 ft.
Phillips Pet. Co.'s No. 3 Jackson Riley, Sec. 88, Blk. B-2, H. & G. N. Sur. ..... Spudded.
Pampa Oil Co.'s No. 1 W. R. Campbell, Sec. 90, Blk. 3.. Drlg. 3,433 ft.; 700 ft water. 3,430 ft; S.D., 3,432 ft.
Purple Sage Oil Co.'s No. 2 E. B. Johnson ..... S.D., 525 ft.
Ray & Massie's No. 1 A. Chapman, NE NW SW, Sec. 51, Blk. 25 ..... Location.
Reno Oil Co.'s No. 1 B. E. McKinney ..... Rigged up and S.D.
St. Clair Oil Co.'s No. 1 C. H. Rowe ..... Spud. and S.D.
St. Clair Oil Co.'s No. 1 L. S. Stocklon, SE cor. Sec. 35, W. R. Lee Sur. ..... Rig on ground.
Shamrock Pet. Co. et al's No. 1 J. B. Back, SE NW SW, Sec. 44, Blk. 25 ..... Show gas, 2,490 ft; drlg., 2,745 ft.
Shamrock Oil Co.'s No. 1 Chapman, NE E half SW, Sec. 50, Blk. 25 ..... Drlg., 490 ft.
Skelly Oil Co.'s No. 1 Bradford, NE cor. Sec. 118, Blk. B-2, H. & G. N. Sur. ..... Drlg., 890 ft.
Skelly Oil Co.'s No. 1 W. Jackson ..... 7,000,000 ft. gas, 2,780 ft. S. O. at 2,865-70 ft; exhausted little fresh wtr., 3,012 ft; swabbed 20 bbls. daily, 2,865-70 ft.
Skelly Oil Co.'s No. 2 Jackson ..... 1,000,000 ft. gas, 2,695 ft; drlg., 2,895 ft.
Spartan Oil Co.'s No. 1 J. Hopkins ..... Rig.
Sullivan et al's No. 1 A. Chapman-A ..... Drlg., 510 ft.
Sun Oil Co.'s No. 1 Jackson ..... Top lime, 2,035 ft; drlg., 2,090 ft.
Staggers Oil Co.'s (was Ruby Oil Co's) No. 1 B. F. Tally ..... T.D., 635 ft; S.D.
The Texas Company's No. 1 J. B. Bowers ..... 40,000,000 ft. gas, 2,810 ft; cmt. 6-in. 2,811 ft.
The Texas Company's No. 2 J. B. Bowers ..... Cmt. 6-in., 2,790 ft.
The Texas Company's No. 3 J. B. Bowers ..... Drlg., 1,000 ft.
The Texas Company's No. 4 J. B. Bowers, SE cor. SE, Sec. 93, Blk. B-2 ..... Rigging up.
The Texas Company's No. 2 H. M. Davis, SW cor. NW, Sec. 86, Blk. 3 ..... Rig.
The Texas Company's No. 1 B. McLarty et al, SW cor. E ½ NW, Sec. 1, Blk. 1, A. C. H. & B. Sur. ..... Rigging up.
The Texas Company's No. 1 S. McLarty ..... Rig.
The Texas Company's No. 4 G. H. Saunders ..... 6,000,000 ft. gas, 2,495 ft; set 6-in., 2,673 ft; T.D., 2,727 ft; 2,-000 ft. oil from G.W., 2,720-25 ft; putting on pump.
The Texas Co.'s No. 1 W. H. Taylor, CNE, Sec. 10, Blk. B-2, (formerly Smallwood et al's) ..... Rig.

HALE COUNTY

Bailey & Young's No. 1 Thomas, Sec. 1, Blk. J.K.L. .. S.D., 175 ft.
Donnell Pet. Co.'s No. 2 Mullican, NW cor. Sec. 66, Blk. A-3, I. & S. B. Sur. ..... Top pay in sandy shale, 405 ft; ½ bailer oil and 3 bailers wtr. per day; S.D., 620 ft.
Donnell Pet. Co.'s No. 1 Mullican, C Sec. 21, Blk. B, R. M. Thompson Sur. ..... 200 ft. fluid in hole from 407-14 ft; S.D.
Explt'n. Co.'s No. 1 Crawford, C NE, Sec. 17, Blk. C-3, T. T. R. R. Sur. ..... Spudded and S.D.
Explt'n. Co.'s No. 1 Goodman ..... Spudded and S.D.
A. S. Mimm's No. 1 W. A. Ritcher, 700 ft. from east line and 1,200 feet from south line, Sec. 17, Blk. X, John Glynn Sur. ..... S.D., 1,140 ft.
Tolbert & Simms' (was Gouldy & Stone's) No. 1 Kitteral, SE cor. NW, Sec. 65, Blk. A-3, G. C. & S. F. Sur. ..... S.D., 485 ft.

HALL COUNTY

Briscoe Oil Assn.'s (was Seifert et al's) No. 1 Owens, C NE, Sec. 179, Blk. S-5, Dennison & Pacific Sur. .. Spudded and S.D

HANSFORD COUNTY

Caldwell et al's No. 1 J. Adriance est. ..... S.D. for pipe, 645 ft.
Oklavania et al's No. 1 Coots, Sec. 13, Blk. 45, H. & T. C. Sur. ..... S.D., 560 ft.

HOCKLEY COUNTY

World Oil Co.'s No. 1 Ellwood ..... S.D., 1,455 ft. to install rotary.

HARTLEY COUNTY

Deep Rock Oil Co.'s No. 1 Lymann & Balfour, Sec. 9... Preparing to abd., 4,038 ft.
Ealick et al's No. 1 J. R. Irving, Sec. 13, Blk. 13 ..... Topped G.W., 3,103 ft; show oil, 3,226 ft; hole full wtr., 3,745-55 ft; S.D., 4,000 ft.

HEMPHILL COUNTY

Hoover et al's No. 1 Schaller est., Sec. 4 ..... Spudded and S.D.
Hoover et al's No. 1 fee, J. S. Hood Sur. ..... S.D., 4,865 ft.

HUTCHINSON COUNTY

R. G. Barnum et al's No. 1 Garland Sanford, Sec. 78, Blk. 46 ..... Rig.
Beam et al's No. 1 Cockrell, Sec. 3, Blk. 23 ..... S.D., 405 ft. for orders.
Big Coach Oil Co.'s No. 1 Dunnaway, Sec. 5, Blk. Y ... S.D., 750 ft.
El Rio Oil Co.'s No. 1 Cockrell, 330 ft. SE cor. W 40 SE 80 N 320, Sec. 4, Blk. 23, B. S. & F. Sur. ..... Spray oil, 2,975-80 ft; swab. 10 bbls., 3,040-75 ft; show wtr., 3,-112-16 ft; C.O., 3,116 ft.
Conklin et al's No. 1 Johnson, Sec. 1, Blk. X03, H. & O. B. Sur. ..... S.D., 600 ft.
Harris et al's No. 1 J. Q. Bost, Sec. 10, Blk. Y-2, T. T. R. R. Sur. ..... S.D., 265 ft.
Holmes & Quinn's No. 1 J. K. Quinn, SW cor. Sec. 9, Blk. 3, B. S. & F. Sur. ..... Rig, U. S. D.
McMan O. & G. Co.'s No. 1 Albert Yake, SW cor. SE, Sec .2, Blk. J, H. & G. N. Sur. ..... Drlg., 1,950 ft.
Phillips Pet. Co.'s No. 12 Elva-Whittenburg, E. Tomlinson Sur. ..... T.A., 4,445 ft.
Phillips Pet. Co.'s No. 1 Perkins-Hamilton, SW cor. of N 240 acres of S half, Sec. 22, Blk. 47, H. & T. C. Sur.. Loc.
Prairie O. & G. Co. and Vacuum Oil Co.'s No. 2 Cal Merchant, Sec. 37, Blk. 47 (100 ft. N. of No. 1) ..... Top lime, 1,775 ft; drlg., 2,321 ft.
Skelly Oil Co.'s No. 2 Armstrong & Byrd ..... Drlg., 520 ft; hole full of wtr.
Skyrocket Oil Co.'s No. 1 Mrs. R. A. Jameson ..... C.O., 3,146 ft; 800 ft. oil in hole.
The Texas Co.'s No. 1 Cockrell-B, Sec. 3, Blk. B-3 ..... T.P., 3,015 ft; 500 ft. oil in hole; run liner, 3,040 ft; R.U. cable tools.
Timms et al's No. 1 C. R. Garner ..... Top lime, 2,444 ft; show gas, 2,-908 ft; moving boiler back.

KING COUNTY

Humble O. & R. Co.'s No. 1 Pitchfork, Sec. 171, Blk. A-96, John H. Gibson Sur. ..... Hole full wtr., 3,375 ft; U.R. 8-in. csg., 3,435 ft.
J. L. Pattison's No. 1 Patton ..... Slight show gas, 2,115-30 ft.; fish 3,410 ft.

LAMB COUNTY

Dan Freel et al's No. 1 Ellwood, CWL S.ec. 9, Blk. T. T. A. Thompson Sur. ..... Spudded and S.D.
Spade Oil Co.'s No. 1 Andrews, 1,085 ft. from N line and 200 ft. from E line, Labor 23, League 643, (5 miles NE of Littlefield) ..... Spud and S.D.
Tolbert & Simms' No. 1 Ellwood, NE SW SW, Sec. 14, Blk. B, R. M. Thompson Sur. ..... 712 ft; small show oil and hole full wtr.; dry, 1,504 ft; temp. abd.

LIPSCOMB COUNTY

Cal-Tex's No. 1 Bradford, C NE NE, Sec. 899, Blk. 43, H. & T. C. Sur. ..... Spudded and S.D.
Camp Creek Oil Co.'s No. 1 Mrs. H. D. May, Sec. 612, Blk. 43 ..... S.D., 2,000 ft.
McCorkle's No. 1 A. Barton, NE cor. SW SE, Sec. 504, Blk. 43, H. & T. C. Sur. ..... Wtr. in lime, 4,126-40 ft; 6-in set, 4,155 ft; S.D., 4,225 ft.
Ozark Drlg. Co.'s No. 1 Frass, NE SE, Sec. 106, Blk. 10, H. & T. C. Sur. ..... Rig on ground.
Smith, Kinsley & Ruby's No. 1 C. W. Jones, NE cor. SW, Sec. 100, Blk. 43 ..... Show oil, 3,520 ft; S.W., 3,900 ft; S.D. in lime and blue shale, 4,-355 ft. for 6-in.

LUBBOCK COUNTY

Center Oil Co.'s No. 1 Bowles ranch ..... Small show oil, 1,133-40 ft., in sand; shut down 2,730 ft.

MOORE COUNTY

Amarillo Oil Co.'s No. 1 Thompson-Amarillo, Cen. Sec. 22, Blk. 26, E. L. & R. R. Sur. ..... Building rig.
Prairie and Shamrock's No. 2 Gober, Sec. 16, Blk. M-21 ..... T.D., 2,520 ft; recmt. 12-in., 1,-525 ft; drlg. by tools.

MOTLEY COUNTY

Explt'n. Co.'s No. 1 Burleson ..... Spudded and S.D.
Explt'n. Co.'s No. 1 Tillison ..... S.D., 750 ft. for repairs.
Explt'n. Co.'s No. 1 Matador Land & Cattle Co., C SW, Sec. 37, John Gibson Sur. ..... S.D., 1,002 ft.
Wheeler et al's No. 1 C. D. Bird, C NE, Sec. 4, Blk. S, Stephens Sur. ..... Spudded and S.D.

OLDHAM COUNTY

Prairie O. & G. Co.'s No. 1 Landegrin, SE cor. NE SW, Sec. 46, League 310, Capital land ..... 1,900 ft. wtr., 4,085-93 ft; 1 bailer wtr. per hr. and light scum oil, 4,527 ft. (steel line meas.) cmt. 6-in., 4,442 ft; 2,000 ft. S.W., 4,850-56 ft; fish., 5,307 ft.

OCHILTREE COUNTY

W. G. Burton's No. 1 Strickler ..... S.D., 3,940 ft.
Hamilton et al, H. E. Wamble ..... Shut down, 250 ft.
McCorkle P. L. Co.'s No. 1 R. H. Moore ..... Shut down, 1,600 ft.
Montgomery's No. 1 Weinett ..... Shut down, 850 ft.
Standard Development Co.'s No. 1 Bowen ..... Shut down, 900 ft.

POTTER COUNTY

Amarillo Oil Co.'s No. 1 Masterson-K, C SW, Sec. 85, Blk. O-18, D. & P. R. R. Sur. ..... Spudding.
Amarillo Oil Co.'s No. 1 Fuqua, C NW, Sec. 18, Blk. 6, B. S. & F. Sur. ..... Digging cellar.
Frank Allen et al's No. 1 W. H. Bush ..... S.D., 300 ft.
Prairie O. & G. Co.'s No. 2 Lee Bivins, 660 ft. N. and 330 ft. W. of SE cor. Sec. 39, Blk. M-20, G. & M. Sur. ..... Set 10-in., 1,885 ft; drlg., 2,020 ft.

RANDALL COUNTY

Westbrook Oil Co.'s No. 1 J. Beckman, SW cor. SE NE, Sec. 46, Blk. B-5 ..... S.D., 1,415 ft. for casing.

ROBERTS COUNTY

Big Bend Oil Co.'s No. 1 Mrs. H. Ledrick & Sons, Sec. 7, Blk. 5-A ..... Show gas, 4,990 ft; show oil, 4,-992 ft; cas. set, 4,992 ft; S.R. for 8-in. pipe; T.D., 5,153 ft.

SHERMAN COUNTY

Gibson Oil Co.'s No. 1 Bivins, Sec. 35, Blk. 3-B ..... 100,000 ft. gas, 2,016-26 ft; T.D., 3,353 ft; 2,000 ft. S.W., 3,325-33 ft; fish., 3,353 ft.
Phillips Pet. Co. and Prairie O. & G. Co.'s No. 1 Price & Fuqua, C NE, Sec. 33, Blk. 2-B, G. H. & H. Sur... 100,000 ft. gas, 2,105-10 ft; T.D., 3,420 ft; 2,000,000 ft. gas, 3,325-3,420 ft. lime; 400 ft. wtr. in hole from 3,535 ft; U.R. 6-in. csg., 3,550 ft.

WHEELER COUNTY

E. L. Arnold's No. 1 M. J. Williams ..... Show gas, 1,644 ft; T.D., 1,790 ft; fish. bit; junked hole, 1,780 ft; to abd.
Byrens et al's No. 1 Johnson, SW cor. NE, Sec. 88, Blk. A-5, H. & G. N. Sur. ..... S.D., 710 ft.
Clark et al's No. 1 J. W. Gordon ..... 5,000,000 ft. gas, 1,768 ft; S.D.
Rook et al's (was Foster et al's) No. 1 S. H. McDonald, SE cor. NW SW, J. N. Lindsay Sur. ..... Spudding and shut down.
Hatcher et al's No. 2 J. Hatcher, C NE SW, Sec. 80, Blk. 23, H. & G. N. Sur. ..... Drlg., 560 ft.
Mid-Kansas Oil & Gas Co.'s No. 1 J. F. Coates, Sec. 93, Blk. 17, H. & G. N. Sur. ..... Rig on ground.
Mid-Kansas Oil & Gas Co.'s No. 1 J. L. Newton, Sec. 92, Blk. 17, H. & G. N. Sur. ..... Rig.
Piney O. & G. Co.'s No. 1 W. S. Walker, Sec. 44, Blk. 24, H. & G. N. Sur. ..... Topped G.W., 2,305 ft; drlg., 3,-394 ft; no oil.
Rook & Angus' No. 1 Smock (Linkey) C SE SE, Sec. 5, Blk. 24, H. & G. N. Sur. ..... Rigged up and S.D.
Smith Brady et al's No. 1 P. J. Sorenson, Sec. 53, Blk. A-4 ..... S.D., 2,120 ft. for orders.
The Texas Company's No. 2 Morgan, Sec. 92, Blk. 17. Drlg., 1,461 ft.
Vaughan et al's No. 1 M. Ackley ..... Location.
Pete Woodley's No. 1 J Boyle ..... S.D., 450 ft.
Kaufold et al's No. 1 E. R. Wallace ..... Rig.
Watchorn Oil & Gas Co.'s No. 2 Binkley & Caine, Sec. 92, Blk. 24, H. & G. Sur. ..... Rig.
Woodtex Oil Co.'s No. 2 C. A. Linkey ..... Drlg. lime, 1,620 ft.

Technical Questions Answered

BY CHARLES K. FRANCIS, PH.D., TECHNICAL EDITOR

This department of The Oil and Gas Journal is devoted to the manufacturing branches of the oil industry.

Those connected with the refining of crude petroleum, the manufacture of natural gasoline and closely allied industries are invited to submit their problems to Dr. C. K. Francis, technical editor. The department was created for the purpose of aiding managers, superintendents, engineers, chemists and all those engaged in the various phases of plant operation; also those connected with the marketing and utilization of petroleum products.

Questions should be submitted in as much detail as possible so as to assure a satisfactory answer.

All inquiries should be signed and if other than the given initials are to be used please indicate the desired letters.

Questions involving patented processes, intricate formulas and calculations and estimates of costs, for obvious reasons, cannot be answered. The replies will appear on this page within a reasonable time.

PRODUCTS OF PETROLEUM

Will you please furnish us with the statistics you have on the byproducts of petroleum, by whom made, in what quantities and money value?—H. M. A.

Over 350 refineries are now in operation in the United States and several hundred more in other parts of the world. All of these make some byproducts of petroleum. No complete list of petroleum products has been published, but such a list would be a very long one. We can trace some 300 products to petroleum and if the indirect substances were added the number would run into many thousand. These products are obtained from every fraction, from the gas to coke. The gas may yield ethers and alcohols, which in turn may be converted into numerous chemical compounds, from which valuable lacquers, gums, dyes, and medical preparations are made. Carbon black and coke are residues which have been made into a multitude of products; such as ink, paint, rubber fillers, carbon brushes and electrodes. These are mentioned as examples to indicate the wide range in the character of products.

There are no figures available showing the total value of all petroleum products and derivatives. The value of direct product from refineries was $2,376,700,000 in 1925, which is the latest report made by the United States Department of Commerce.

QUALITY OF GASOLINE FROM WEST TEXAS CRUDE

Can you tell me what is the general quality of the gasoline which is made from West Texas crude; such as gravity, distillation, and the quantity of sulphur?—R. L.

Analyses of twelve samples of oil from the West Texas district have been reported by Kraemer, Grandone, and Luce, Reports of Investigations, U. S. Bureau of Mines. This report shows that the oils from this district differ in quality to a considerable degree. The gravity of the twelve samples ranged from 24.5 to 38.2 A.P.I.; the percentage of sulphur from 0.36 to 2.69; and total gasoline from 14.5 to 32.8 per cent.

The gravity of the gasoline for the lowest yield of 14.5 per cent, was 50.9 and for the highest yield of 32.8 per cent, was 59.8 A. P. I. The initial boiling points of the gasolines ranged from 84 to 165 degrees Fahrenheit, with an initial for most of them around 86 degrees. The quantity of sulphur in the gasoline was not given in this report.

DAMAGE TO FILTER CLOTHS

The blankets in our wax presses go to pieces in spots, mostly in small holes like the cloth had been scorched. Some of these spots test acid but we cannot explain the presence of acid because the distillate has not been acid treated. Can you give us any suggestion about it?—T. R. A.

Decomposition of filter cloths is usually caused by acid or mildew. Sometimes there are traces of water present and these contain very small quantities of sulphuric acid. This acid is formed in the still through the conversion of the sulphur compounds contained in the oil. While the drops of water contain very little of this acid, it becomes concentrated when the cloth dries; that is, when the water evaporates the strength of the acid is increased to a sufficient extent to cause damage to the cloth. Some protection may be gained by occasionally washing the blankets in dilute caustic soda or sodium carbonate solution. Passing the oil through a light filter of fullers earth will remove traces of water.

The Journal of the Ceramic Society has published suggestions for the care of filter cloths, which may be of service, as follows:

Be sure the press sacks fit properly. New sacks, particularly treated ones, should be soaked in water before putting on the press, to shrink the cloth. Press cloths should never be piled up while damp, as this hastens mildew action and deterioration of the cotton. Moist heat and darkness promote mildew. Sunlight and dry air prevent it. To prevent rust and sharp points that will cut filter cloths, scrape and paint the press plates whenever necessary. Care should be used in closing press plates together gently, as slamming them hard causes rim cuts. Many sacks are ruined in washing. Press sacks should not be left too long in a washing machine; only long enough to clean the sacks. The sacks should be spread out in a revolving washing machine so that the wear will not be concentrated on a few folds, which weakens the yarns and shortly causes small holes to appear. Prolong the life of the sacks by patching small breaks with a reliable waterproof canvas cement.

GASOLINE AND OILS FROM COAL

What is the nature and yield of gasoline and oil as obtained in the carbonization of coal at low temperatures?—M. L. L.

The carbonization of coal has been investigated by several American and foreign authorities over a period of many years. Reports of these have appeared from time to time in The Oil and Gas Journal. See especially the Report of the Coal Conference at Pittsburg which was printed in The Oil and Gas Journal November 18, page 40; November 25, page 34; December 2, page 134; December 9, page 90 and page 179; all 1926. The following is quoted from a recent paper by Dunstan and Shatwell which was presented before the Institute of Fuel:

"The main object of all systems of low-temperature carbonization of bituminous coal is the production of a solid, smokeless fuel, which may be employed, either in domestic fireplaces or in the pulverised state for burning under boilers. The low-temperature or primary tar which is simultaneously obtained can only be regarded as a by-product, and the valuable researches which have been conducted at H. M. Fuel Research Station shows definitely that the average yield of such liquid product from suitable British coals is of the order of 16 gallons per ton. It is clear, therefore, that the success of low-temperature carbonization will depend almost entirely upon the demand for the main product, viz., semi-coke, and that the liquid by-product can supply but a fraction of the fuel oil requirements of this country.

"The investigations which have recently been carried out on the chemical nature of primary tar show, further, that this material cannot be regarded as a complete substitute for petroleum."

In discussing low-temperature tars the authors stated that examination of tars by methods of distillation were frequently based on coal-tar practice, and the results so obtained were difficult to collate. Parrish and Rowe gave the following results of distilling a primary tar produced by the carbonization of coal from the Pooley Hall seam in vertical retorts, the yield of tar being about 14 gallons per ton of coal.

Fraction	B. P.	Per cent. of Tar By Weight
1	Up to 17° C.	2.79
2	170° C.-230° C.	20.45
3	230°-270°	14.35
4	270°-310°	12.69
5a	310°-335°	10.07
5b	Residue	36.06
	Loss	1.30

Sinnatt and King had made an attempt to separate a low-temperature tar arbitrarily into marketable products, as follows:

Refined products per ton of coal:

		Per cent on Crude Tar.
Refined spirit from Gas	= 1.40 galls.	8.6
Light naptha or spirit to 160° C.	= 1.2 "	7.3
Heavy naptha to 200°	= 0.7 "	4.3
Burning oil to 270° C.	= 1.8 "	11.0
Gas oil to 300° C.	= 0.8 "	4.9
Light lubricating oils to 300°	= 0.7 "	4.3
Tar acids, 190° to 310°	= 4.7 "	26.6
Pitch	= 50 lbs.	37.0

COST OF PRODUCING GASOLINE

Have seen a table on the average cost of producing gasoline from crude: one cent a gallon; but never saw a table on the cost of producing gasoline from natural gas. Could you supply the average cost of producing gasoline from natural gas by the several methods?—F. S. T.

There are so many factors involved in the refining of crude oil that it is quite difficult to arrive at an average cost, which would mean anything, for making gasoline. Consideration must be given to the location of the refinery; quality and cost of the crude oil; proximity of the market; the kind of refinery, and the extent of the separation together with the quality of the products. All of these factors vary with the manufacturing costs and while these may be referred to as refining costs, they are but a small part of the actual cost.

The cost of refining a barrel of crude was discussed by W. T. Ziegenhain, in The Oil and Gas Journal, December 1, 1927, page 151. He states: "While it is impossible to say exactly what the average cost of refining a barrel of crude is, it is not difficult to determine the relation between the various costs and set up a fair index of the average cost." He shows that a plant making gasoline, kerosene, gas oil and fuel oil may operate as low as 12 cents a barrel, considering manufacturing expenses only. When the operation is extended to include cracking and the manufacturing of lubricants the cost may be about 50 cents. Including all items the cost becomes 87 cents as follows:

Operation and maintenance	
Skimming	$ .10
Lubricating plant	.09
Cracking	.09
Pipe line transportation	.15
Sales costs	.11
Depreciation	.14
Interest, taxes, insurance	.17
Overhead	.02
Total expense per barrel	.87

Any statement of cost for an individual product will depend upon the basis selected. At this time most refiners have centered costs and profits around the market price for gasoline; that is, gasoline bears the larger part of the operating cost because for the normal crude it yields the greatest return. However, the return obtained from other products must be considered. A complete analysis of this question needs more space than is available here. It may be stated that gasoline is costing under the varied conditions from 5 to 10 cents a gallon. See Gasoline and Crude Price Relation by C. O. Willson, The Oil and Gas Journal, December 1, 1927, page 158.

While some of the same or similar factors must be considered when estimating the cost of natural gasoline, it appears somewhat easier to arrive at this cost. Probably the lowest cost is close to 4 cents a gallon, while others may go as high as 8 cents.

d^{15}_{15}	Tar Acids per cent. Vol.	Bases per cent. Vol.	Neutral Oil, per cent. Vol.
0.850	10.2	1.7	88.1
0.949	45.9	1.0	53.1
0.981	49.5	3.5	47.0
1.003	37.6	2.3	60.1
1.132	33.2	2.4	64.4
—	—	—	—
—	—	—	—

SHORTAGE IN SHIPMENTS

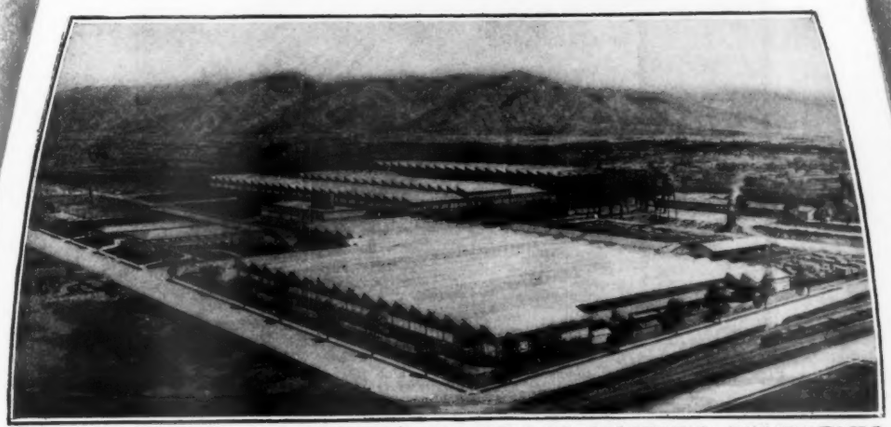
We have shipped several cars of acid treated cylinder stock within the last month each of which showed an excessive outage when it was received by the customers. An investigation at our refinery has shown the cars were loaded shell-full in each case by being topped off after cooling and the invoiced gallonage temperature corrected, yet, a shortage of from 40 to 160 gallons has occurred in each case. Could you advise us what factor we might be overlooking? — A. C. M.

The fact you have noticed this recently and the stock in question has been acid treated leads the writer to connect this with a similar experience in which it was found that when a car of treated cylinder stock is slowly allowed to cool after being filled shell full, the full shrinkage does not show up on the gauge pole. The acid treatment removes enough of the asphaltic matter to raise the pour point of the cylinder stock very high and the treated stock will often solidify at 50 degrees Fahrenheit.

During the recent cold weather it is probable the car of stock slowly solidified from the outer shell toward the center of the car, forming a network of wax crystals which did not allow the oil to settle as it cools and contracts. The fact you topped the car did not alter this condition and it was not until after the car had been shaken enroute that the stock finally settled to its true position.

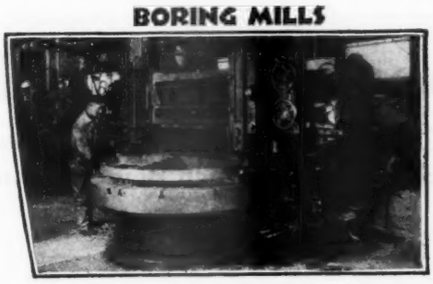
The difference in the loading temperature and the rate of cooling varied the amount of the shortage in the various cars and this accounts for the wide range of difference in the outage you can name. These outages could be eliminated by switching the car as it cools but the simplest way of handling such a problem seems to be to allow a reasonable claim for the shortage.

8 ACRES OF FLOOR SPACE

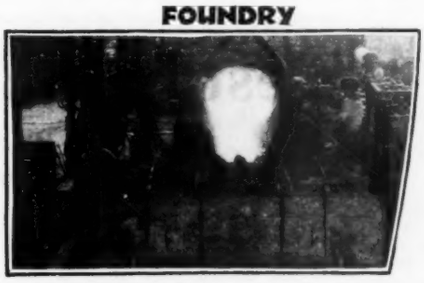


36-ACRE WORKS • ALHAMBRA (NEAR LOS ANGELES) CALIFORNIA

BORING MILLS



FOUNDRY



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New Equipment in Compound House

Empire Enlarges Facilities at Ponca City Refinery. Several Interesting Features in Design and Operation

By H. W. Camp
General Superintendent of Refineries, Empire Oil & Refining Co.

A new $75,000 compound house has recently been completed at the Ponca City plant of the Empire Oil & Refining Co. The old compound plant which was erected in 1923 has been rapidly outgrown, and a new one was made necessary to handle the demands of jobbers and the intercompanies. Many new and up-to-date features are included in the design.

Considerable equipment is required in the manufacture of the Empire's line of oils and greases which include 109 separate compounded oils and 21 types of greases. The compounded oils include a complete line of motor oils, cylinder oils, Diesel, engine, dynamo and machinery oils, gas engine and compressor oils and a number of miscellaneous oils such as black oils, turbine oils, quenching oils, cutting oils, crusher oils, harness oils and a great many others. Greases range from No. 00 cup grease to Cisco compound heavy, which is a very viscous mineral grease and is widely used on oil well drilling tools under high pressures and temperatures. However, the equipment is so arranged that even with this great variety, the capacity is approximately 5,000,000 gallons of compounded oils and 3,600,000 pounds of grease per year.

The building is of reinforced concrete, faced with brick and has a transite roof. It is three stories in height, having a basement, main or filling floor and a third floor or kettle floor. A majority of the wall space is composed of windows, thus assuring plenty of ventilation and light and the building is also equipped with steam radiators for cold weather. The floors are of concrete and are sloped so that all parts of the building drain to a sump which is periodically pumped to a slop tank.

Ten Oil Kettles

There are 10 oil kettles inside the building and one outside ranging in capacity from 500 to 8,000 gallons each. The inside kettles are different in design from the usual, being rectangular tanks with cylindrical bottoms. The kettles are partitioned off into sections of varying sizes so that batches of 5, 10, 15, 20 and 40 bbls. can be made at a time. The curved part is steam jacketed, the jacket extending part way up the vertical side and each section is equipped with air coils. This arrangement of sections gives great flexibility of operations, storage space for oils and due to varying sizes cuts down the amount of oils that are ordinarily carried in drums on the floor. The filling racks and spots are directly below the kettles, so that the drums are filled by gravity, there being 26 fillers. There are enough lines and they are so arranged that there is little chance for contamination.

Sufficient tankage is arranged to handle all of the necessary raw oils for compounding and the finished oils in tank storage. There are 26 tanks ranging from 80 bbls. to 600 bbls. capacity, 14 of them being situated outside the building and the remainder inside. The various neutrals and cylinder stocks are pumped to the compound plant by the refinery proper and the kettles are charged by means of motor-driven rotary pumps, located in the basement so as to have a flooded suction. Two of these pumps handle cylinder stock and are steam jacketed so as to facilitate handling the heavy oils during cold weather. The lines connecting outside tanks to the manifold in the basement are laid in a concrete trench which is heated by means of a steam line thus preventing the lines from freezing up in severe weather. Control of pumps and valves is arranged so that the compounder does all of his work without leaving the kettle floor. Remote controls on the pumps are located on the kettle floor so that the flow of oil into the kettle can be very closely controlled in making exacting blends. Also extensions are provided on the valves on the manifold in the basement so that the compounder can switch tanks and lines without ever leaving the kettle.

The grease department is equipped with six grease kettles ranging in capacity from 400 to 15,000 pounds each. These are steam jacketed and equipped with up-to-date mixing devices. Filling is done on the main floor, direct from the kettle, and adequate floor space is reserved for the storage of packaged goods.

View showing bottom of compounding kettle to which lines will be connected allowing drums to be filled by gravity direct.

Storage Facilities

Ample storage and working space is provided throughout. A thousand drums of oil can be easily carried on the floor at one time, thus permitting rapid making up of mixed orders. A separate building connected by two runways houses the can and shook supply and is so arranged that cans are moved direct from warehouse to fillers and then to floor or loading dock. The loading dock has a capacity for five box cars and three tank cars at a time. Foreign oils and grease making supplies are stored in the basement of the compound house in steel barrel racks, a stacking machine being used to lift the barrels in and out of the racks. The barreled material is transported to the kettle floor by means of an automatic elevator.

Barreling Department

A barrel washing floor is situated on the side of the building and is equipped to handle 2,500 drums a month. The old drums are unloaded at one end of the dock into the near end of the reconditioning platform which serves as storage space for them. The drums are then picked up, inspected for defects and if none show up at the first inspection are reconditioned. A mechanical barrel

(Continued on Page 150)

Testing Laboratory Aids Industry

Blue Star Plan One Result of Work Done. Companies Back the Research Work and Much Being Accomplished

By R. M. Conner
Director, Testing Laboratory, American Gas Association

One might logically ask at this time, two and one-half years after the testing laboratory's establishment, just what have been its accomplishments. What has the gas industry to show for its investment of approximately $125,000? In the beginning, let me state that without doubt the most valuable contributions it has made will never be brought strikingly to anyone's attention. They are such features as the added conveniences and comforts that will result from the use of safer, more efficient, and standardized types of gas appliances, all of which can only be analyzed accurately in terms of the customers' good will.

Good will is a rather intangible asset, somewhat difficult to define and yet absolutely essential in insuring the complete success of any public utility business. I believe it is needless to add that the future of an industry such as ours rests principally upon a foundation of good will. Better gas appliances will mean more satisfied customers and in the end should result in greater popularity for the use of gas.

Established June 1, 1925

The testing laboratory was established on June 1, 1925. Activities of the first few months were confined entirely to remodeling work and the installation of necessary testing equipment. Coincident with this work committees were appointed for the preparation of approval requirements for space heaters, water heaters, house heating appliances, installation of appliances and the revision of existing gas range specifications.

The requirements for flexible gas tubing being completed, tests were begun on this class of equipment August 1, 1925. At the same time research work necessary in the preparation of safety requirements for gas ranges was taken up in our laboratory and the United States Bureau of Standards. By January 1, 1926, most of the testing work on flexible gas tubing had been completed, the requirements for gas ranges adopted and testing work begun on them. On June 1, 1926, approval tests had been started on space heaters, and by April 1, 1927, water heater testing was begun. Fully one-fourth of the efforts of the testing staff have been confirmed from the beginning to research work required in the preparation of safety requirements for ranges, space heaters, water heaters and house heating appliances. At the present date standards of acceptance for these four major types of house heating equipment have been approved and laboratory tests are being conducted on the three mentioned above.

The April 1 list of approved appliances include 15 types of gas tubing, 96 space heaters and 4,638 gas ranges. Prior to October 1, we hope also to supply a fairly complete list of approved water heaters and house heating appliances.

Companies Back Results

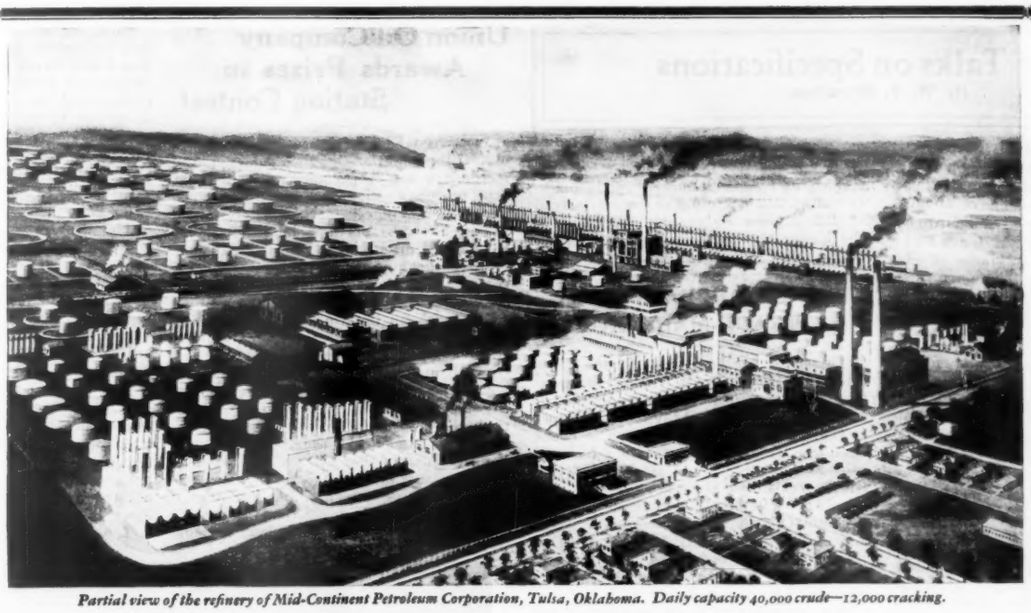
The most significant action taken by the gas industry in recognizing the importance of the testing laboratory was the adoption of a resolution at our latest annual convention pledging all member gas companies of the American Gas Association to confine their sales exclusively to approved types of gas ranges and tubing. As the next logical step in coordinating further the various phases of our appliance testing program pledges were secured from the leading gas range and tubing manufacturers committing their organizations exclusively to the manufacture of approved products. Similar action will undoubtedly be taken by the gas companies before long on space heaters, water heaters and house heating appliances. As soon as sufficiently large lists of water heater and house heating appliance manufacturers are made available they will also be asked to take the same pledge subscribed to by our leading gas range and tubing manufacturers.

After surveying the laboratory's accomplishments since its inception, I believe even the most exacting will admit that the preparation of approval requirements and the actual testing work have progressed rapidly, and that the progressive manufacturers have in general come to recognize the importance and value of its work. It appears therefore that in so far as the actual operations of the laboratory are concerned, it has attained a fair measure of success. However, the biggest job in making its work really effective—that of selling its value and necessity to the American people—still lies before it.

The Blue Star Plan

Slightly over a year ago the commercial section, under the leadership of R. J. Canniff, Standard Gas Equipment Corp., instituted the Blue Star plan. All of my readers are familiar with this activity which had for its motive featuring the desirability of approved types of appliances. Some 28 model homes were installed throughout the country and aroused a great deal of public interest in the plan. Every Blue Star home was adequately piped with convenient outlets for all modern types of gas appliances and the equipment selected in

(Continued on Page 150)



Partial view of the refinery of Mid-Continent Petroleum Corporation, Tulsa, Oklahoma. Daily capacity 40,000 crude—12,000 cracking.

STERLING Oil Sections
Increase Gasoline Production 10%
for Mid-Continent Petroleum Corporation

THE Mid-Continent Petroleum Corporation, at the giant Tulsa refinery, was one of the first users of STERLING Oil Sections. The large condensing and cooling capacity of STERLING sections, with the saving of idle time formerly lost in making replacements, increased production of light distillates approximately 10 per cent. A brief analysis of the increase of capacity and the labor saving features of the equipment shows that this rate of increase is a normal one.

Big Saving in Idle Time

Easy accessibility of all parts of STERLING condensing equipment—the simplicity of the STERLING ground metal joint with its perfect fit and quick adjustment—the flange connection with specially designed lug—these improvements make it possible to replace a STERLING Section in 3% of the time required to replace a length of old style surface.

More Rapid Condensation

It is generally recognized by refinery engineers that greater condensing capacity per square foot is inherent in the *design* of STERLING Sections, by comparison with old style surfaces. The exclusive features of "STERLING" design are—

(a) The radiator fins cast integrally which enlarge the total submerged surface with correspondingly rapid heat transfer.

(b) Utilization of the manifold principle with small vapor streams at high velocity. Larger liquid streams in the cooling sections at low velocity.

(c) The quick drop to the cooler portion of the box because of the pitch of the channels and the winding flow.

(d) Oval shaped channels providing greater surface contact.

Although STERLING Condensing and Cooling Sections are cast from ARCO corrosion resisting metal, they cost less (installed) than ordinary surfaces.

Our district representatives are glad to co-operate with you without obligation on your part, by submitting estimates, layouts and other necessary engineering details. Revised catalog will be sent free on request.

AMERICAN RADIATOR COMPANY

Industrial Division No. A

40 West 40th Street NEW YORK | 816 South Michigan Avenue CHICAGO | Factory: Springfield, Ill. | 935 Kennedy Bldg. TULSA | 1214 Quinby Bldg LOS ANGELES

Of Interest to Sales Departments

Short Talks on Specifications

By W. T. Ziegenhain

CORROSION TESTS FOR GASOLINE

The corrosion specification has been accepted as a very important one and most refiners have adopted this as a standard specification for their regular grades of gasoline. There are three different methods of test in use and a sample which passes one of these may fail to pass a more stringent one. These tests are ordinarily distinguished by name as (1) the copper dish test, (2) the copper strip test at 122 degrees Fahrenheit and (3) the copper strip test at 212 degrees Fahrenheit.

The copper dish test is the most stringent and is not ordinarily used except to test aviation or export gasolines. The copper strip test at 122 degrees Fahrenheit is the one generally used on domestic motor gasolines and when no particular method is specified, it is generally understood this one is to be used.

The corrosion test is intended to detect the presence of an excessive amount of free sulphur and acids in the gasoline. These may corrode the copper gasoline supply line, the carburetor valve or even pit the cylinders. These tests do not quantitatively determine the amount of corrosive material present nor indicate the nature of the material but will give a fair idea of the relative amount of corrosion that will result in use.

The copper dish test is specified for testing aviation gasoline and for certain export grades because it is the most severe. In addition to showing the amount of corrosion, the test also shows the amount of residue or gums resulting after evaporating the sample to dryness. Briefly stated, the test procedure specifies that 100 c.c. of the gasoline be poured into a freshly polished copper dish about 3½ inches in diameter and heated in a steam bath until all of the volatile constituents are evaporated.

The steam must come in contact with the dish at least up to the level of the surface of the gasoline. After the gasoline is evaporated to dryness the dish is weighed. Its weight then is more than before starting the test because of the formation of the black and gray corrosion products and some residue or gums. The difference between the original weight of the dish and the weight on completing the test is taken as the weight of the corrosion products. If this difference amounts to more than 3 mg. the gasoline will not pass ordinary aviation and export specifications.

Domestic Test

The test generally used for domestic motor gasolines is somewhat different in that, instead of weighing the amount of corrosion products the extent of the corrosion is judged by the appearance of a polished copper strip after it has been held submerged in the sample of gasoline for three hours at a temperature of 122 degrees Fahrenheit. The test procedure prescribes the use of a small bottle or test tube, to hold the polished copper strip. The bottle is filled so the strip, one-half by 3 inches in size, is completely immersed. The bottle is then loosely stoppered and held in a suitable bath for three hours. If the strip at the end of that time is more than slightly discolored the gasoline is said to be corrosive.

The third test, namely, the copper strip test at 212 degrees Fahrenheit, is carried out exactly like the test just described except the temperature is maintained at 212 degrees Fahrenheit instead of 122 degrees Fahrenheit. Because of the higher temperature, this test is more severe.

VISCO CO. APPEALS TRADE-MARK RULING

An appeal has been made by the Visco Chemical Products Co. for reconsideration of the refusal of the examiner of trade-marks to register the name "Visco."

The denial of the registration is based upon the ground the notation so nearly resembles the registered marks "Viscosolene," registered by the Seneca Oil Works; "Viscolite," registered by the Vacuum Oil Co., and "Viscometer," registered by the Viscosity Oil Co., as to be likely to cause confusion or mistake in the mind of the public or to deceive purchasers.

The examiner cites in support of his holding the case of the Midwest Oil Co. in which the court held the notation "Avio" was confusingly similar to the notation "Aviolina."

GASOLINE PRODUCTION LESS ON WEST COAST

Production of refinery gasoline in California for the first time in several months experienced a slight decline in November, according to the latest report of the Bureau of Mines. The November production averaged 172,316 bbls. daily, being a 453-bbl. decrease under the October average. The daily production in November, however, was 28,349 bbls. greater than the daily average for November of last year. The November report is based on 48 operating refineries.

The following table gives the average daily gasoline output of California refineries for the past year:

Month—	Daily Av. Gasoline Prod.	Nov., 1927 Daily Av. Increase or Decrease
November, 1926	143,967	28,349
January, 1927	158,355	13,961
February, 1927	161,670	10,646
March, 1927	152,495	19,821
April, 1927	164,473	7,843
May, 1927	156,911	15,405
June, 1927	157,726	14,590
July, 1927	160,432	11,884
August, 1927	159,702	12,614
September, 1927	171,655	661
October, 1927	172,769	*453
November, 1927	172,316	.....

*Decrease.

COASTAL REFINERY RECORD

HOUSTON, Tex., Jan. 9.—The Gulf Coast refineries will close 1927 with the record of having manufactured and marketed the largest volume of refined oils in their history, despite the low price of lubricants, caused by keen competition. Receivership for Galena Signal Oil Co. of Texas, and the subsequent closing of the Keen and Woolf refineries, brought about a slightly improved condition in the refined oil markets.

MORE TANKS AT MIDLAND

SAN ANTONIO, Tex., Jan. 10.—The Magnolia Petroleum Co. (Standard Oil Co. of New York) will erect as soon as possible eight additional 55,000-bbl. storage tanks at its tank farm at Midland. This will give the company storage capacity for 1,100,000 bbls.

Union Oil Company Awards Prizes in Station Contest

LOS ANGELES, Calif., Jan. 6.—Gasoline filling stations have become so numerous in the larger cities that their type of construction and general appearance are having a marked effect upon the architecture of their immediate surroundings. Standardization in design has been the keynote of the major marketing companies with the result that stations which might be in harmony in one district struck an inharmonious note in another. In the immense chain of service stations which have become so numerous throughout the country that they are now a definite factor in the everyday life of the people, seldom is it found that the stations fit in or blend with the development of the neighborhood; quite frequently they offer a marked contrast to and detract from the architectural beauty of the adjoining buildings.

Recognizing this fact, the Union Oil Co. is attempting to develop various types of stations so as to remedy this condition and mark the way for more harmonious settings. It has recently carried on a contest for the purpose of securing designs of service stations which would be adaptable to the particular locations in which it operates and be of civic value to the various communities. In this the company has the co-operation of the National Institute of Architects.

Cash prizes were offered for the best three designs and honorable mention with a monetary consideration were also given to a number of other designs.

That the movement to combine beauty and utility in service station construction found favor not only among the architectural profession but also among civic bodies is indicated by the number of entries in the competition and also by commendatory editorial comment and expressions from various public officials. Over 100 entries from all sections of the Pacific Coast were received and passed upon by the jury of award.

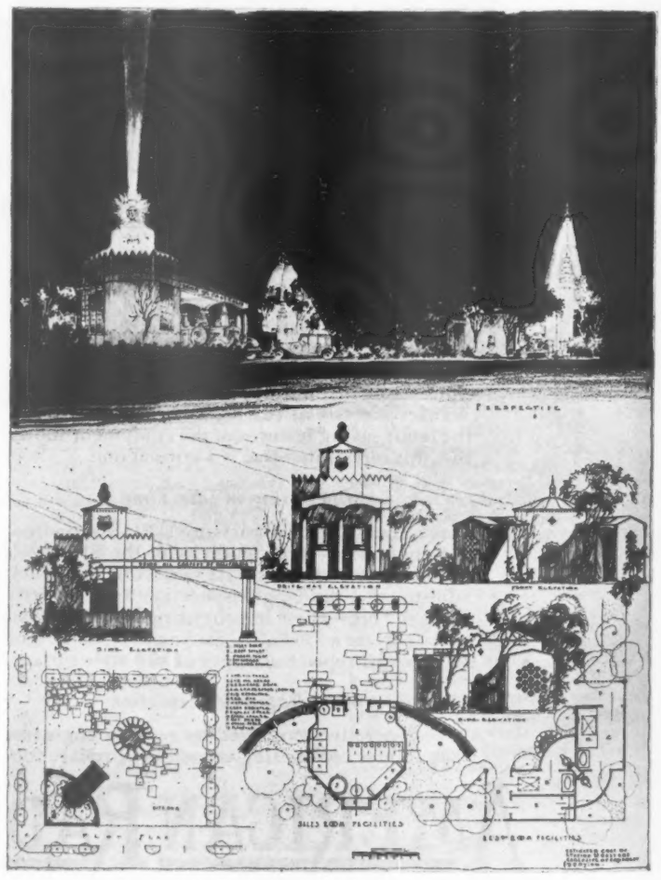
The winning design was submitted by Lyle Reynolds Wheeler of Los Angeles. It is of a purely modernistic architecture, and is of a type readily adaptable to all Pacific Coast localities. Several unusual architectural features, not ordinarily found in service station buildings, are incorporated. Lighting effects are utilized in a way never approached.

Harbin F. Hunter, also of Los Angeles, won second prize. His design was also of a modernistic type of architecture and it is distinctive in that only three materials are used in its construction, these being metal, marble and glass. Modified Spanish was the motive used by Harry Sims Bent in his third prize conception.

The awards were made by a jury of three, Reginald D. Johnson, past president, Southern California Chapter American Institute of Architects, and winner of the national award in 1925 for residental architecture; Stiles O. Clements, member of the national architectural body, and L. P. St. Clair, vice president of the Union Oil Co. In announcing the awards the jury stated that the quality of the designs submitted ranked very high.

It is not the intention of the Union Oil Co. to standardize on the designs sub-

(Continued on Page 152)



Station winning first prize in Union Oil Co.'s contest.

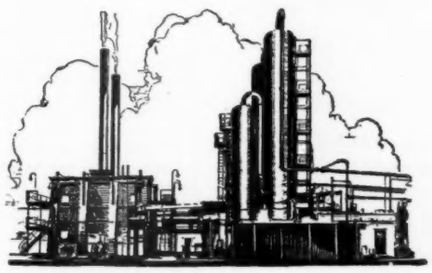
THE CROSS CRACKING PROCESS

Efficiency, economy, safety~

all three identify the Cross Process

The CROSS CRACKING PROCESS is unique in that it combines the three advantages of efficiency, economy and safety.

It is continuous, yet it affords ample time for the cracking reaction to be completed. Once-through gasoline yields are a maximum. Since the heat of vaporization is saved, heat economy is marked. Safety is assured by carrying on the operation substantially in the liquid phase, in a large reaction chamber, outside the heating zone.



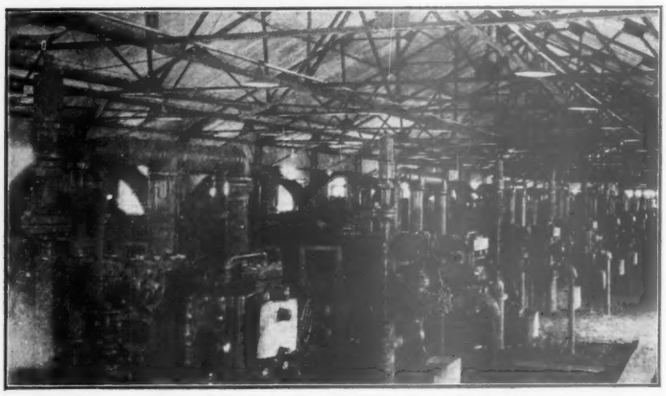
KELLOGG

CROSS CRACKING PLANTS~BUBBLE TOWERS~PIPE STILLS~HEAT EXCHANGERS~GRAY TREATING TOWERS~TREATING PLANTS

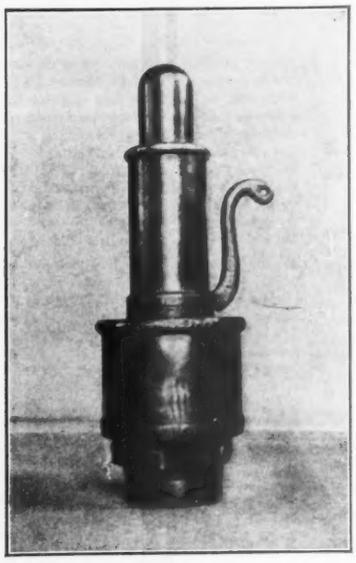
THE M. W. KELLOGG CO., 7 DEY STREET ~ NEW YORK

KANSAS CITY, MO., 700 BALTIMORE AVE. ~ SAN FRANCISCO, CAL., 444 MARKET ST.
LOS ANGELES, CAL., 329 PETROLEUM SECURITIES BLDG.

RELIEF VALVES



American Hydraulic Relief Valves in the pump house of Empire Pipe Line Co., Lima, Oklahoma.



American Valve No. 36553. This valve has just been returned to the factory for replacement of the spring. It was originally shipped in October, 1895. And yet, after 33 years of service, it is still in good condition.

For Air Lift, Pump Service or for Pipe Lines, American Relief Valves will give you years of satisfactory service.

Write for free Catalogs. Specify those desired.

Gauge Catalog A-5

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AMERICAN SCHAEFFER & BUDENBERG CORP.

338 Berry St., Brooklyn, N. Y.

Branches in Principal Cities

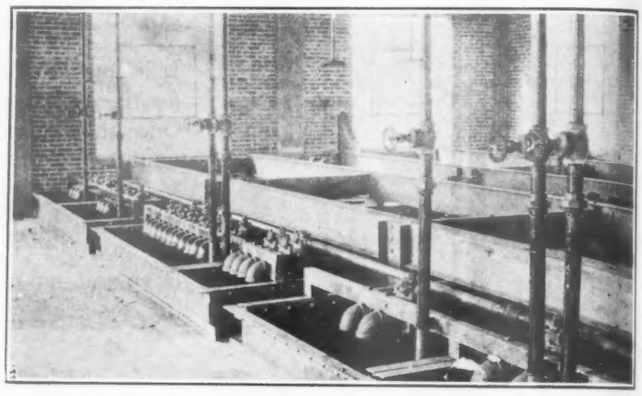
Makers of American Industrial Instruments since 1851.

NEW EQUIPMENT IN COMPOUND HOUSE

(Continued from Page 146)

washer is used for cleaning and polishing the interior of the drum. Naphtha and steel chain are put in the drums and the machines' two way tumbling soon removes every bit of oil and foreign material that might be in the drums. The drums are further cleaned by setting upside down on steam jets, the steam removing the traces of naphtha and heavy oils that might remain after washing. As a final step in the interior cleaning they are dried by an air jet. All paint and foreign material is removed from the exterior by washing in a series of baths of metal cleaners and hot water.

After thorough cleaning the drums are minutely inspected for any defects such as pin holes, defective crimps, defective welds, or any other defect that might have shown up after cleaning that was not visible during the first inspection. The drums are then moved to the painting floor where they are painted in the standard black and white colors, and after drying are sent to storage where they are held until needed for shipment.



View of steel foundation for raw oil tanks. The desired amount of raw oil may be dropped from these into any kettle by means of the system of lines shown.

This department also takes care of the service given to customers' drums. Many jobbers have their own drums which they send in for filling and which they want painted and stenciled in a certain way. These drums are given the same careful cleaning and are then painted in any colors that the customer desires.

The whole building is laid out together with adjoining buildings so that all material, whether raw or finished, follows the shortest and most convenient path from the time of its arrival to its being shipped. The various materials enter at separate places so that their paths do not cross until they are assembled in the cars at the loading dock. All manifolds, lines and tanks are arranged so as to prevent any contamination or mixing of oils and tanks and kettles are so equipped as to give the maximum flexibility.

New and up-to-the-minute equipment such as automatic can filling machines, automatic barrel fillers, remote controls, portable axle grease mixers, steam jacketed rotary cylinder stock pumps, and numerous other similar devices are utilized throughout with the idea in mind of equipping a compound house so as to give a maximum of service with a minimum amount of time and expense.

TESTING LABORATORY AN AID TO INDUSTRY

(Continued from Page 146)

every instance of the highest quality available.

On January 1, 1927, the secretary of our advertising and publicity section, C. W. Person, aided by J. W. West, Jr., secretary of the commercial section, prepared the first national advertising material featuring the Blue Star seal of approval and the desirability of approved appliances. This material consisted of the following:

Four newspaper advertisements; one window display card; one mailing card; one list of laboratory approved tubing and appliances.

Advertising Program

Of all this material that having the greatest possibilities is the small mailing card which is a replica of the large window display card, to be mailed out with the customers' gas bills. These cards will fall into the hands of the housewives and should prove interesting and educational to them. It is the writer's opinion that the first two logical steps in advertising the American Gas Association laboratory are: (1) Thoroughly selling the gas industry itself on the plan; (2) Placing our story before the public. Once the people are educated to demand approved appliances it will not take the dealers and department stores very long to realize the necessity of stocking them. Unless there is some specific demand, however, on the part of the customer the dealer will probably continue to offer the cheaper types of appliances, on which he can generally make the greatest profit. With a growing demand on the part of his customers, however, for approved types, it is only reasonable to assume that within a very short time the average dealer will fall in line.

Bound Copy of Approvals

Another activity that should assist in featuring the sale of quality products is the bound copy of approved ranges, space heaters and tubing recently published by the Testing Laboratory. Every company member has been furnished one of these free and placed on our mailing list, which entitles them to subsequent editions. Anyone can secure a copy of this booklet on payment of a $2 fee, which represents the actual cost of printing the booklets and maintaining the monthly mailing service.

It is generally comparatively easy for an industry to recognize the necessity of such an altruistic plan as that underlying the establishment of the laboratory even in one with so many different views as are represented in ours. However, to convince its people that they should spend large sums of money to place such a plan in effect, it is an entirely different matter. The fact that the gas business has done so—and so liberally—is an indication of its sincerity and earnest desire to serve its customers to the best of its ability. The principles on which the laboratory is founded are idealistic and its establishment is positive proof of the fact that the gas industry proposes to place the safety and general affairs of its customers above its own convenience or that of any immediate profits.

ROCK ASPHALT SALE

LOUISVILLE, Ky., Jan. 7.—Gen. H. H. Denhardt, Kentucky counsel for the Standard Rock Asphalt Co., has announced the sale of the controlling interest of the Natural Rock Asphalt Corporation to a group of eastern capitalists. The development will involve several million dollars. Earl W. Sinclair, president of the Sinclair Oil Refining Co., is chairman of the board of directors of the Standard company, the holding corporation.

ALLOYS

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HILLS-McCANNA 42

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Meeting the widest possible variety of specific applications

High thermal conductivity—co-efficient of expansion 50% greater than steel—corrosion resistance—immunity from oxidation at elevated temperatures and freedom from growth by repeated heating and cooling, are qualities that make Hills-McCanna Alloys preferred for Thermometer Wells, Pyrometer Protection Tubes, and Still Plugs.

Quicker and more accurate thermometer readings—tight joints—no "freezing"—safety against blow-outs and many other advantages are assured. Threads are smooth, clean and sharp, retaining their accuracy. A comparatively loose insertion is permitted yet forming a tight closure as temperatures and pressures increase.

Our experience, research and development facilities are available to every user of fittings—valve trimmings—pump parts — gears — bushings — bearings — etc., made from Ferrous or Non-Ferrous Alloys.

Write for Alloy Bulletin, O-1.

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FORCE-FEED LUBRICATORS · PROPORTIONING PUMPS · SPEED REDUCERS

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In The Right Place

Keeping down the friction load and reducing friction wear to a minimum, is the problem of every operator of machinery. And there is but one solution to the problem—using the right oil in the right place.

The nature of the oils needed for the proper lubrication of bearings differs as widely as bearings do—in their type, their operating speeds and temperatures, the weight they carry at normal and peak loads, the frequency of their starting and stopping, and the method by which the oil is applied to the bearing surfaces.

All of these points have been carefully studied by our engineers, and Humble Zero Cold Test Oils have been scientifically prepared to meet certain operating conditions. Each Humble Oil is just right for the place that we recommend its use—you may depend on that—whether it be in your plant or in your automobile.

The Humble Oil & Refining Company is a large user of both heavy and light equipment of various kinds, and our lubricating engineers have made exhaustive tests on our own equipment, the results of which are offered to all users of lubricating oils.

And if you are having trouble with the lubrication of any particular bearing in your plant, our engineers will be glad to study your problem and furnish you with an oil that will solve it. Just ask us.

Reg. U. S. HUMBLE OIL & REFINING CO. HUMBLE OILS HOUSTON, TEXAS *Pat. Off.*

Humble Oil & Refining Co.
HOUSTON, TEXAS
Producers - Pipe Lines - Refiners - Marketers

PIPE LINE SHIPMENTS INCREASED DURING YEAR

Large production and consumption of crude oil during 1927 proved a boon to most pipe line companies. A majority of these units increased deliveries over 1926, and, with transportation rates unchanged, the Wall Street Journal says, a number of companies should show larger profits.

Of the 11 pipe lines comprising the Standard Oil group, 7 reported increased deliveries and 4 lower shipments, compared with 1926. In the first 11 months of the current year, the group as a whole delivered 167,497,512 bbls. of crude oil, against 152,373,635 bbls. in the corresponding period of 1926. Daily average this year was 501,489 bbls., a gain of nearly 10 per cent over the average of 456,208 bbls. daily in the corresponding 1926 period.

Deliveries by Buckeye Pipe Line Co. this year increased approximately 9.7 per cent over the 11 months of 1926. Those of Eureka Pipe Line gained 13 per cent, Indiana 6.7 per cent, National Transit 8 per cent, Prairie 28 per cent, Southern 90 per cent and Southwest Pennsylvania 27 per cent.

Units showing reduced deliveries were: Cumberland, about 5 per cent; Illinois, 4.9 per cent; New York Transit, 56 per cent, and Northern, 40.4 per cent.

1927 and 1926 Deliveries

The following table shows deliveries by the various companies of the group in the first 11 months of 1927 and 1926, in barrels:

	1927	1926
Buckeye Pipe Line ..	28,967,954	26,408,857
Cumberland	2,886,999	3,053,060
Eureka	9,365,300	8,281,128
Illinois	10,584,486	11,129,544
Indiana	24,682,209	23,116,939
National Transit	9,004,384	8,331,501
New York Transit....	2,619,675	6,029,494
Northern	5,129,824	8,621,155
Prairie	59,181,091	46,356,619
Southern	3,148,367	1,655,636
Southwest Penna.	11,927,223	9,389,702
Total	167,497,512	152,373,635
Daily average	501,489	456,208

Dividend Record

Several of the companies paid special dividends in 1927. Cumberland Pipe Line paid a $33 a share special from proceeds of sales of securities in connection with tax adjustments, but reduced its regular rate to $8 a share yearly, against the $12 regular paid in 1926. Indiana Pipe Line paid a special $15 a share dividend, regular $4 yearly and two $1 extras, a total of $21. In 1926 it paid the regular $4 and three $1 extras, or $7. Southern Pipe Line Co. paid $10 a share as the final payment in connection with its reduction in capital in 1926, and a $2 dividend, or a total of $12. In 1926 it paid a special of $40 (the first payment in the capital reduction), and a $1 dividend, or a total of $41.

Buckeye Pipe Line in 1927 paid the regular $4 a share yearly against $5 paid last year. The latter included two 50-cent extra dividends. National Transit paid the regular $1 a share this year against $1 and 12½ cents extra last year. New York Transit paid nothing in 1927, against $3 in 1926. Northern paid $7 a share, same as last year, which included $6 regular and $1 extra. Prairie Pipe Line raised its yearly rate to $10 a share, paying this total in 1927, against $8 the year before. Southwest Pennsylvania Pipe Line paid the regular yearly of $4 and a $2 extra, a total of $6, against the regular $4 in 1926. Eureka Pipe Line paid the regular $4 yearly and Illinois the regular $12, both the same as last year.

Stock Price Ranges Compared

The following table shows number of shares outstanding, earning per share in 1926, with approximate current price of stock and high and low for 1927 and 1926:

Company—	No. Shares Outsid.	1926 Earn'gs per Share	Approx. Current Price	1927 High	1927 Low	1926 High	1926 Low
Buckeye	200,000	$5.23	57	60	46	53½	42
Cumberland	30,000	13.03	90	137	89	137	102
Eureka	50,000	*	66	68½	47	63¾	43
Illinois	200,000	†14.95	176	182	123¾	144½	125½
Indiana	100,000	8.17	78	94½	61	70	52¾
National Transit	509,000	‡	20⅝	24	13½	20¾	12½
New York Transit	50,000	2.12	39	44½	31¾	51½	27¼
Northern	40,000	9.37	92½	100	70	89½	64
Prairie	810,000	17.82	187	190	132	137½	123⅛
Southern	100,000	1.50	22	27¼	15⅛	$27	$21
Southwest Pennsylvania	35,000	7.12	74	83	65½	56	47⅛

*Reported deficit of $213,673 after dividend payments. †As indicated by balance sheet. Company issues no income account. ‡Issued no report. §New stock.

Rockefeller Foundation Holdings

Among the largest single holdings of pipe line stocks are those of the Rockefeller Foundation. On December 31, 1926, the foundation held 49,693 shares, about 25 per cent of Buckeye Pipe Line Co. outstanding stock; 6,000 shares, about 20 per cent, of Cumberland Pipe Line Co.; 12,357 shares, about 25 per cent, of Eureka Pipe Line Co.; 24,845 shares, about 24.8 per cent, of Indiana Pipe Line Co.; 126,481 shares, about 25 per cent, of National Transit Co.; 12,392 shares, about 25 per cent, of New York Transit Co.; 9,000 shares, or 22 5 per cent, of Northern Pipe Line Co.; 24,845 shares, or 24.8 per cent, of Southern Pipe Line Co., and 8,000 shares, about 22.8 per cent, of South West Pennsylvania Pipe Lines. These holdings were unchanged from the preceding year.

In recent years pipe lines were affected by increased movement of oil to Atlantic Seaboard by tank ships. Following the war there was a large surplus of tankers, some of which were put in the Mexican service and with development of the California fields, oil was shipped through the Panama Canal to the eastern seaboard. This was followed by building of additional pipe line capacity from Mid-Continent fields to the Gulf Coast, from where tankers were used to bring oil east, causing a correspnoding reduction in pipe line shipments to the eastern seaboard.

In the earlier months of 1927 tank steamer tonnage was largely engaged and as production and consumption of oil increased it became necessary to use pipe lines to a greater extent. This situation eased up around September, and a reduction in tanker rates followed. Another factor that affected pipe line deliveries was the reduced production in the Seminole Field of Oklahoma in recent months. However, while deliveries by the group showed a falling off in September and October, an increase was shown in November.

Northern Pipe Line

The stockholders' protective committee of Northern Pipe Line Co., headed by Benjamin Graham, chairman, has sent a letter to stockholders seeking proxies for annual meeting on January 19. The letter says that a large part of the company's capital is not used in the pipe line business and is held in a sort of involuntary investment trust yielding only 3½ per cent after income taxes. The letter states:

"It is evident in the interests of the stockholders that a great part of these cash assets not employed and not needed in the pipe line business should be returned to them for investment as they see fit."

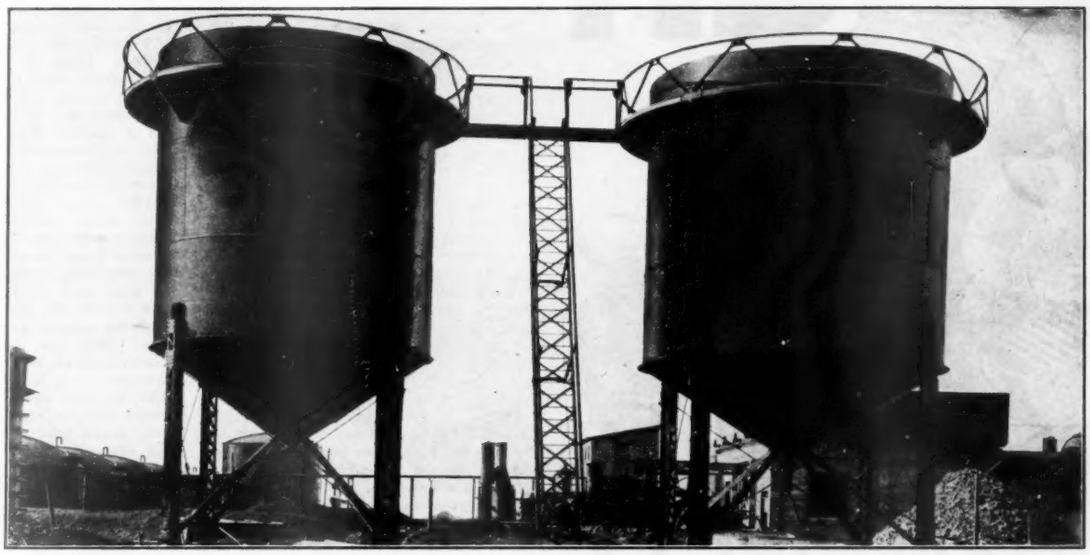
The committee states that it represents in excess of 6,500 shares of the company's stock.

There are 40,000 shares of Northern Pipe Line stock outstanding, of $100 par. Rockefeller Foundation owned 9,000 shares, or 22½ per cent, of the total, as of December 31, 1926.

UNION OIL COMPANY AWARDS STATION PRIZES

(Continued from Page 148)

mitted in the construction of its service stations, neither will these be reproduced intact. They will merely be used as types from which the best features for operating stations will be adapted, keeping in mind the desire to create nothing that will conflict with neighborhood or city development.



Agitators, Amarillo, Texas

Complete Service for the Oil Field

Service—by Pittsburgh-Des Moines engineers who will suggest standard tanks or design special tanks to meet your requirements.

Service—in the prompt shipment from stock of standard Pittsburgh-Des Moines field tanks of 5,000 to 80,000 barrels capacity, standard dome roof tanks of 500 to 5,000 barrels, and standard horizontal riveted and welded tanks of 75 to 26,000 gallons.

Service—in the prompt fabrication of special tanks from materials carried in stock at our shops.

Service—by trained Pittsburgh-Des Moines field crews who will install the tanks in quick time.

Back of this service is our wide and varied experience in steel tank construction during the past thirty years. Our engineers will gladly discuss your tank problems with you, without obligation on your part.

Send to our nearest office for designs and estimates of the tanks you need. For handy reference, write for our Oil Tank Catalog No. 11.

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915 Tuttle St., Des Moines, Ia.

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NEW EVIDENCE IN BRANSON WELL SAID TO REVERSE GEOLOGICAL IDEAS

By Walker S. Clute
Petroleum Geologist.

The progress of the drilling of the Parker Club's No. 1 Adams, Section 32-34-56, Las Animas County, 8 miles east of Branson, Colo., should be considered quite satisfactory thus far to all parties interested.

The well is drilling at 3,787 feet, after recovering a bit. The 400 feet of hole from 3,330 feet was through slaty blue shale of the upper Pennsylvanian series; also various water sands and lime shells. The shale caves into the hole in "pencil cavings," so designated by the drillers because it fractures in long pencils sometimes 15 inches long and an inch square in cross section. This type of "pencil cave" is characteristic of the Pennsylvanian formation in parts of Oklahoma and Texas, and, according to Ed Parkhurst, the driller, the "pencil cave" was first recognized in Ohio and Pennsylvania.

The lower part of the Pennsylvanian formation is the objective of this well, or the Mississippian limes beneath it. These horizons should be encountered between 3,800 and 4,400 feet.

The water encountered at 3,725 to 3,737 feet is not by any means the first in the well. Thin water sands have been present from 1,700 feet on down. The 10-inch casing is set at 2,320 feet, and the water shut-off at that point has proved successful, also the 8-inch at 3,640 feet. The present water differs from that higher up, by analysis, and is sometimes salty. The temperature of this water is about 100 degrees.

The well has been drilled thus far with but two small fishing jobs, after certain difficulties had been overcome in the first 300 feet. The casing has been kept free throughout and the shut-offs are positive. For this score unusual credit goes to Charles and Ross Cooper, who are superintending the drilling, and to Ed Parkhurst, his son, both drillers of many years' experience in the Texas and Oklahoma fields.

The red beds, characteristic of so great a part of the high plains country, have been passed through at 3,150 feet. In the red beds the usual gypsum, also several expected strata of white water sand, were encountered. At the shallow depth of 925 feet a flow of gas, amounting to 500,000 feet per day, was found, which analyzed unusually high in carbon dioxide. It was dangerous to the men working about the well, as inhaling it had the effect of inhaling ammonia, choking and laying out the men who were blocking up the casing clamps in the cellar of the rig. Gas masks were of no avail.

Men Lowered Into Well

In this connection, at another time will be told the story of the first 300 feet of drilling of this well, in which cavities large enough to house an automobile were found, and the drill hole was so crooked that the men went down the well on slings and worked it with picks and set dynamite charges. Also tree trunks were set against one side so as to send the bit back to the proper side; and finally, when the line parted and the bit stuck in the bottom, two men went down successively 300 feet and tied chains to the bit, with rocks and water falling in on them, and the bit was fished out.

Regional Geology

As to the geological formations and the possibilities for oil, it may be well first to review the geology of the surrounding territory.

The well location lies some 60 miles eastward from the east front of the Sangre Cristo Range of the Rockies. In geologic ages past, prior to the Pennsylvania era, the area of Colorado, New Mexico, and indeed all of the Mississippi Valley lay below the sea of that time and received the shales and sands washed down from the lands to the west and east, and beds of limestone were formed in the waters. So far as central Colorado is concerned, at the close of the Pennsylvanian period, a mountain range, the First Rockies, was lifted up and the overlying beds of Pennsylvanian age were turned upward, with certain bending and folding along the east base of the mountains. But the Pennsylvanian beds of eastern Colorado and the great valley still remained below sea level, and thereafter through a great period received on top of them the wash from the First Rockies. This was in early Triassic times, after which all of eastern Colorado rose above sea level; and the region of Utah, Nevada, and Arizona was also lifted into a high plateau country that was even more massive than the First Rockies, for the First Rockies were fast being eroded away. By Mid-Cretaceous times, the First Rockies were eroded down to complete sea-level, and, some time later, were lowered completely under the sea again. Thus the Utah-Nevada-Arizona region was left as the predominant land mass, and sediments from there washed over the old Rocky Mountain region, eastern Colorado, and toward the Mississippi valley. This condition extended to the end of Cretaceous time.

Then occurred the great uplift, the results of which are seen today. The Second Rockies, or present Rocky Mountains were thrust upward, a granite core, over which lay the Cretaceous sediments, among them the Dakota sandstone which is such a distinctive marker today. Through Cretaceous, Tertiary and Quaternary times down to the present, there has been continual erosion of the Rocky Mountain mass without much further uplift, and the process is in progress today.

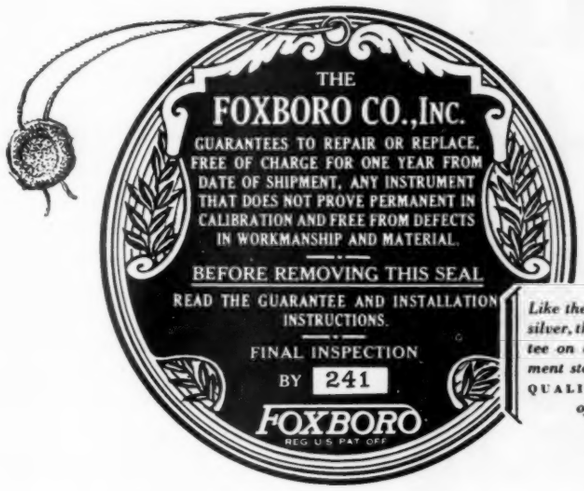
However, in late Tertiary times, lava flows issued from the Rocky mountain mass, sometimes cutting through all the sedimentary strata as dikes, and pouring out in great sheets, as on Raton Mesa, Johnson Mesa, and the Mesa de Maya southeast of Trinidad. The laval sheets are more resistant to erosion than the softer strata and cap many flat-topped hills.

Now the sediments of eastern Colorado, Kansas, Oklahoma and western Texas are similar and equivalent, ranging upward from the Pennsylvanian to the Tertiary. In the Mississippi valley, also, beneath the Pennsylvanian, are the Silurian, Devonian, and Ordovician strata. As a result of the last Rocky Mountain uplift, which was accompanied by various movements of buried granite ridges in New Mexico, Colorado, Panhandle Texas, Oklahoma, and Kansas, the strata were bowed up gently in places into anticlines, or were correspondingly depressed or left as valleys or synclines.

Accumulation of Oil Deposits

It will be understood that in all probability the shales of all geologic formations are the original sources of petroleum; that is, the organic constituents of the shales developed into petroleum. Also all of the earth of the plains below a few hundred feet is practically saturated with water, which may be assumed to have slow movement downward or sidewise through porous sandstone members. When the water picks up any oil from contiguous shale members, it may be pictured as transporting this oil; but since oil is lighter than water the water will replace it, and the result will be for the water to float the oil to the highest possible locations under the overlying shale beds. These high locations happen to be the anticlines, where all strata rise to a dome from all sides, and therefore the oil finally comes to rest up in the dome of the anticline, held there by an impervious layer or cap rock of shale of great extent. Any gas given off from the oil stays in that location also; and of course it must be remembered that the particular layer of rock, either sand or limestone, that the oil and gas are in is porous so that the oil moves fairly freely through it to

(Continued on Page 162)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USE OF CENTRIFUGAL PUMPS IN OPERATION OF PIPE LINES

By Floyd E. Warterfield, Jr.*
Oklahoma Pipe Line Co., Muskogee, Okla.

Recently, there has been much agitation as to the relative merits of pumping equipment. A great many comparisons have been made upon purely assumed conditions. It is unfortunate that there is so little actual data available, upon which to base a direct comparison between different classes of equipment, or between different equipment of the same class. The elements entering into pipe line "cost analysis" are, for the most part, hard to determine; and when once determined, to evaluate correctly. Because of this difficulty, some one or more of the component parts are only roughly approximated or else omitted entirely. Every pipe line or station presents its own particular set of problems and it is wholly unfair to assume that whatever may serve in one case would work equally well in any other. Before a true comparison can be made between any two stations, the whole story should be told, and the existing conditions in each made absolutely plain.

In view of the previous statements, this paper will confine itself largely to the problems involved in one specific installation of motor driven centrifugal pumps for pipe line work. It has for its purpose, first, the presenting of the conditions prior to the installation; the reasons for the selection of the centrifugal units; and so far as possible, actual construction and operating costs. Second, the effect that the experience gained from this one installation may have upon the future use of centrifugal pumps in petroleum transportation.

The data and information has been furnished through the courtesy of the Oklahoma Pipe Line Co., and the installation referred to is the one known as its Henryetta station.

Initially, a 10-inch line had been built between its Cromwell and Council Hill stations, to provide an outlet for a portion of the oil produced in the Seminole area. The line was designed to handle 32,000 bbls. of oil per day at 480 pounds pressure. The gravity varied from 39 to 40 degrees A.P.I. and had an average viscosity of about 48 seconds Saybolt Universal at 60 degrees Fahrenheit. Some concern was felt as to whether there would ever be sufficient production for the line of operate at its maximum capacity. But, as frequently happens in pipe line work, the line was hardly complete before it was found necessary to effect an immediate increase in the delivery to Council Hill.

Time Paramount

Production from a new field is almost invariably well in advance of all storage and pipe line facilities. Seminole, was certainly no exception. As is always the case in caring for a sudden increase in output, the element of time becomes the one item of paramount importance.

To attempt to determine, even approximately, the maximum production of a field, the time required for it to reach a settled figure, or even what this amount would be, is most certainly a hazardous undertaking for anyone. However, it was generally believed that the added capacity, so far as this case was concerned, represented a "peak load" that would be handled for a maximum of only six months. At the end of this time the load would have fallen to the original value of from 30,000 to 32,000 bbls. per day.

It is customary to compare equipment and in some instances (where ample time will permit) to select it, on the basis of the "unit cost per barrel of oil pumped." Even under ordinary conditions "time of operation" is hard to determine. "Time of operation" refers to the length of time the equipment shall operate and is a very important item in the unit cost figure. Under the stress of "do it now," it seldom, if ever, receives the consideration that it should. It is generally the case that comparative analyses, and more especially where the time for the increase is short, are forced to neglect "fixed charges" and the equipment is selected on the basis of the "time required for delivery." Unit cost comparisons are investigated at some future date.

There was adequate pump capacity at Cromwell station for the proposed increase and the problem was to find the quickest way in which the delivery could be made to Council Hill. It was a case of either loop the line or construct an intermediate booster station. No line pipe was available, and even if there had been, with an adequate amount of time in which to lay it, the expenditure of $528,000 would not be justified, for the short time it would be used. In order to effect the ultimate increase that has been realized, approximately 37.6 miles of 10-inch pipe, laid from Council Hill and parallel to the old line, would have been required. Computations for a booster station placed it at a point quite close to an existing high line and electric power could be obtained quickly and easily.

Immediate delivery could be made on motor driven centrifugal units, and as a whole conditions seemed to be ideal for their use. It was realized that the operating cost would be high, but with due consideration for the time saved and the low fixed charges, it was thought that the high rate could be profitably paid for the short time the units would be in service.

Installed Cost

Accordingly two automatic compensator controlled 300-horsepower 440-volt, General Electric induction motors, driving two Byron-Jackson 6 by 17½ four stage centrifugal pumps arranged in series and running at a full load speed of 1,750 r.p.m., were installed.

The following is a summary of the present installed cost of the present completed station. As will be explained later, certain changes were made in the motors. The cost given does not include the expense of making these changes but as though the present equipment had been initially installed.

1	Pump house building and incidental construction, i.e., small storehouse, roads, walks, grading, fencing, etc.	$ 3,500
2	Pumping equipment, to include pumps, motors, switchboards, foundations, wire and miscellaneous	16,000
3	Other station equipment, to include 5,000-bbl. surge tank, gauges, pipe, gates and miscellaneous fitting and connection work	9,000
	Total	$28,500

Local construction conditions for this station were far above the average. If an estimate should be required for a similar installation remotely located and built under adverse conditions, a figure of $30,000 would be approximately correct.

The installation was designed for adverse operation that is usually experienced in winter pumping and was to deliver 44,000 bbls. of 38 degree A.P.I., 75 second Saybolt Universal oil, at a pressure of 580 pounds. Much satisfaction was experienced when the station was started the latter part of April, and it was found that the capacity exceeded that made for the assumed conditions. The increased delivery was very much needed, yet it could only be realized at the expense of a very severe overload on the motors. This caused no small amount of trouble in maintaining and keeping the station in an operating condition. When it was found that the pumps would deliver this quantity of oil, and that the line capacity was adequate, it was thought advisable to correct for the overload on the 600 horsepower of motors by installing two of 400 horsepower each and operating at 2,300 volts.

The increased delivery is explained by the fact that the weather was warm and the oil run fresh from the field at a tem-

*Before Mid-Continent Section, American Society of Mechanical Engineers, Tulsa.

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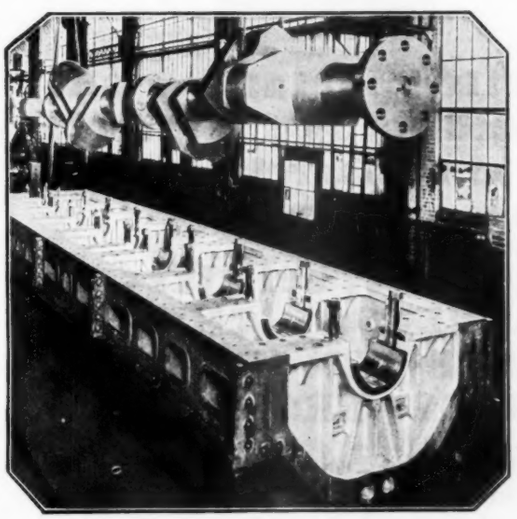

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Electric Railway Babbitt	*Standard No. 4 Babbitt*

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perature of 75 degrees Fahrenheit. On test the oil showed an average gravity of 38 degrees, and a Saybolt Universal time of 46 seconds. In addition there was actually 155 feet of fall between Henryetta and Cromwell that was only approximated in the original calculations. In order to protect the motors as much as possible the station was run with a wide open header gate during the cooler hours of the day and under this condition delivered around 50,000 bbls. per day at a line pressure of 535 pounds. For the remainder of the time the gate was pinched down in order to raise the head and decrease the horsepower on the motors with a consequent reduction in delivery.

At the present time the oil has a line temperature of about 60 degrees Fahrenheit, with a Saybolt Universal viscosity of 52 seconds. When the header gate is wide open, the delivery is around 51,500 bbls. per day at 580 pounds and no troublesome temperature overloads have developed as were experienced with the 300-horsepower motors.

Result of Test

The following is the result of a brief test made by representatives of the Oklahome Gas & Electric Co. to determine the approximate mechanical efficiency of the pumps:

OKLAHOMA PIPE LINE COMPANY—HENRYETTA STATION
May 31, 1927

Equipment

Two 300-horsepower motors 1,750 r.p.m., 3, 6 cycle, 400 volt.
Two 6 by 17½ 4-stage Byron-Jackson pumps arranged in series.

Electrical Data

Substation tests 2,300 volt side of 2300/440 3-200 K.V.A. transformers.

KW	R a/c K.V.A.	K.V.A.	P.F.	Transformer Losses
592	296	662	89.5	22

	Avg. Amps. per Phase	Avg. Volts per Phase	P.F.	K.W. Input	H.P. Input	92% Motor Eff. B.H.P.
High duty pump	420	448	89.5	290	388	357
Low duty pump	405	448	89.5	280	375	345
				570	763	702

Oil Pipe Line Data

Suction	Line Pressure Discharge	Bbls. per Hour 12N to 1PM	S.U. Vis.	Temp. Oil	Hydraulic H.P.
12	555	2057	46	75	466

Efficiency of pumps $\frac{466 \times 100}{702} = 66.2$ per cent

Note: A 5,000-bbl. working tank was installed and the suction pressure of 12 pounds was due to the height of the oil above the level of the pumps at this period. The header gate was pinched down and the pressure given is between the discharge of the high duty pump and the heater gate.

The actual money expended for operation during the months of May, June, July and August is as follows:

1	Maintenance:		
	(a) Material for repairs	$ 99.34	
	(b) Labor for repairs	613.49	$ 712.83
2	Transportation operation:		
	(a) Station, labor, regular	3,307.42	
	(b) Casual labor and misc. (i.e., waste, lamps, brooms, etc.)	470.12	
	(c) Lubricating oil	50.53	
	(d) Power (1.03 cents per K.W.H.)	14,984.44	18,812.51
	Total		$19,525.34

Total barrels of oil pumped during this period, 5,464,002.2.
To al energy used, 1,454,800 K.W.H.
Average number of barrels pumped per K.W.H. is 3.75.
Operation and maintenance cost alone is 0.3575 cents per barrel.

Cost per Barrel

With the above figures as a basis, maintenance is 3.65 per cent of the total transportation cost and is at the rate of 7.8 per cent per year on the present investment of $27,500. This rate of 7.8 per cent is not a true figure but should be slightly higher due to the fact that the present investment is greater than it was at the time the maintenance figures were taken. It must be remembered that the maintenance cost of $712.83 applies to a time when the station was being placed in operation and that many things were done that would be avoided in the future. Considering the heavy overload that was placed on the motors it is not unreasonable to assume that the operation was abnormal in every particular. The present 400-horsepower motors have not been in operation long enough to determine a true figure, but indications are that it will not exceed 3 per cent of the total cost as a yearly maintenance cost.

In order to arrive at an exact cost per barrel of oil pumped it is necessary to take into account the item of "fixed charges." For this purpose, the useful life of the station is assumed to be 20 years and the functional depreciation to be taken care of by setting up a 4 per cent sinking fund to provide for replacement. Interest on the total investment is at the rate of 6 per cent and taxes 3 per cent.

Pumping Cost
(Four months operation.)

"Fixed Charges"		
Interest on investment	$550.00	
Depreciation	307.80	
Maintenance	712.83	
Taxes	275.00	$1,844.63
"Operating Charges"		
Labor, power and misc.		18,812.51
Total		$20,658.14

Unit cost per barrel of oil pumped, 0.3710

A comparison between the actual cost at Henryetta, and an estimated cost for a motor driven plunger pump station of about the same capacity, may not be entirely correct, but if all the items are considered some idea of the respective operating costs can be obtained.

50,000-Bbl. Two Unit Booster Station
Motor Driven Plunger Pump Units

1	Pump house building and incidental construction	$12,000
2	Pumping equipment, to include two 300-horsepower motors direct connected to two 25,000-bbl. triplex plunger pumps, and miscellaneous.	50,000
3	Other station equipment, to include working tank and all incidentals..	13,000
	Total	$75,000

The station is assumed to deliver an average hourly amount of 2,085 bbls. of 37 degree A.P.I., 52 second Saybolt Universal oil through 25 miles of single 10-inch line at a pressure of 580 pounds. Efficiency of the pumps 85 per cent, and of the motors 93 per cent. The useful life is assumed to be 20 years with depreciation taken care of by a 4 per cent sinking fund to provide for replacement. Maintenance and taxes at 3 per cent and interest on the total investment at 6 per cent. Computations based on 730 hours operation at a flat rate for power of 1.03 per K.W.H.

"Fixed Charges"		
Interest on investment	$375.00	
Depreciation	209.87	
Maintenance	187.50	
Taxes	187.50	$ 959.87
"Operating Charges"		
Regular station labor	$525.00	
Incidental labor, lub. oil and miscellaneous material for operation	300.00	
Power	3,500.09	4,325.09
Total		$5,284.96

Total barrels of oil pumped in 730 hours, 1,522,050.
Unit cost per barrel of oil pumped, 0.3471.

This would indicate that the plunger pump station would operate 0.0309 cents or 8 per cent per barrel cheaper than the centrifugal units. However, for short time operation, if the centrifugal units could be delivered and installed quicker, this difference can be disregarded.

Working Tank

That a working tank is unnecessary is a point frequently advanced in favor of the centrifugal pump. There are instances wherein this is true but the unqualified statement will not hold for all cases. For example, the pumps at Cromwell station were all of the plunger type and in case of an enforced and unforeseen shutdown at Henryetta, immediate and very destructive pressures would be built up along the line. To safeguard against this emergency, relief valves had to be placed on the discharge lines from the pumps at Cromwell. There is no question but that relief valves do afford

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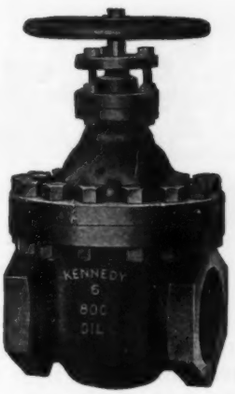
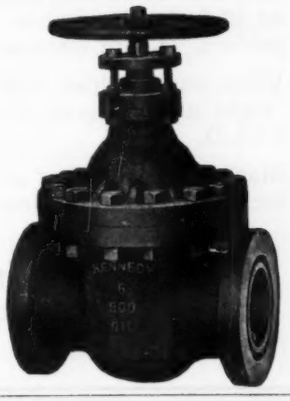
Other Kennedy products for the oil industry include standard, extra heavy, and extreme pressure globe, angle and gate valves, malleable iron screwed fittings and cast iron flanged fittings. These products are fully described and listed in the Kennedy Catalog, which will be sent on request.





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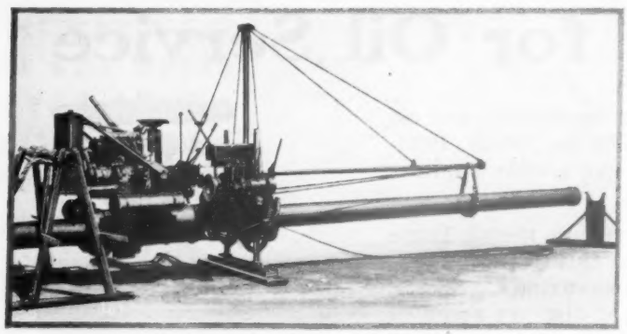

Photograph showing 8, 10 and 12 inch machine used in the construction of many pipe lines in Texas and Oklahoma this season.

One of our machines has record of laying over three miles of 8 inch pipe in one day. Another laid 8000 feet of 10 inch pipe and another laid 7000 feet of 12 inch pipe in one day's run. The work was perfect. There were no leaks or breaks in lines.

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Steady! For hitchless, constant duty.

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some measure of protection but by no means should they be regarded as positive insurance against accident. Further difficulty was experienced at Henryetta due to the low duty pump pulling a vacuum and hence working at a decided disadvantage. A surge tank was the only logical solution to the troubles and in addition to providing adequate safety, insured a well-filled pump. Positive local control has everything in its favor and present experience indicates that a working tank will merit the added expense and should most certainly be installed.

If conditions in the future should be similar to those described for Henryetta station there is no doubt that a centrifugal installation would be made. In addition to some of its other advantages the series arrangement of pumps is very desirable. When their main line service is terminated they may be used as individual units on local station work where only a temporary installation is required. Not only are the units compact and comparatively light, and hence can be transported easily, but they require a minimum foundation and housing space and can be installed more quickly than any other unit of even greater capacity.

Power Rates

A serious drawback to the centrifugal, and especially with small quantities at high heads, is its low mechanical efficiency. When coupled with an electric motor as a prime mover, the rate that can be paid for power must necessarily be as low as possible. Because of this low efficiency, the power companies should not be expected to compensate for it by furnishing power at a loss. Neither should the power companies penalize the pipe lines because they use the electric motor—in itself a remarkably efficient piece of equipment. It is almost time for the rate makers to adjust their demand and stand by charges to fit true conditions. Apparently sufficient consideration has not been given to the fact that pipe line work is the exact opposite of an industry. The pipe line in general begins with a peak and grades downward; the industry usually starts with a minimum and works toward the peak. It is doubtful if one rate can ever be conceived that can apply equally to both classes of loading. Centrifugal as well as plunger pump manufacturers naturally desire the best possible efficiencies for their products and competition will keep them striving for improvement. Whether they succeed or fail, before the electric motor can retain its rightful place in oil field work, some change must be made in power rates. It is realized that the whole thing is relatively new and that present rates may be in the nature of an experiment; yet unless there is some revision, power companies are in danger of finding themselves with ample equipment on their hands for service—and no customers.

Pipe lines have been constructed wherein all stations used motor-driven centrifugal pumps entirely, but it is unlikely that this practice will meet with much favor in the Mid-Continent Field when the rates that must be paid for power are seriously considered.

The data that has been presented for this one installation should not be used as a criterion for the acceptance or rejection of the centrifugal unit. Although not entirely defined, the centrifugal pump does have a real place in petroleum transportation and its use under certain conditions will not only be continued but increased. However, it will be remembered that each installation is to stand on its own feet and the selection of any pumping equipment made on the basis of existing circumstances.

SHARP COMPETITION IN LIGHT CAR FIELD SEEN

NEW YORK, Jan. 7.—Bitter competition in the low-priced light car field will be the feature of the automobile business in 1928, according to a motor authority interviewed here before the opening of the New York automobile show. Three leading manufacturers are ready to put on new models at record low prices, these being Ford, Chevrolet and Whippet. Each has given notice that, despite his confidence that there is room for everybody, he does not intend to be outsmarted in the low-priced field.

Details of the new Ford are now a matter of history, although it will be some time before the new model will reach wide distribution. General Motors has announced a new Chevrolet for early January and the Willys-Overland company will show its new Whippet "at prices which would place it in direct competition with the lowest priced car on the American market at the present time." John N. Willys himself has expressed the situation in his statement that "there can be no monopoly in the light car class."

The belief is that the sale of low-priced cars will show an enormous increase in 1928 as compared with 1927, because prospective buyers will know shortly after the beginning of the year just what models and prices they have to choose from. In 1927 many prospects were waiting for action on the part of Henry Ford before committing themselves with a low-priced car purchase.

There has already been a big volume of orders for the new Ford, and those who desire to buy another model after seeing the Ford will have nothing more to wait for. There will be absolutely no restrictive influence on buying.

Gulf Coastal Water Shipments, November Compared With October

(All Figures in Barrels and 42 Gallons)

Company, Port—	Coastwise Refined— October	Coastwise Refined— November	Export Refined— October	Export Refined— November
Standard of Louisiana, Baton Rouge	604,766.00	785,717.00	860,043.00	766,940.00
The Texas Company, Port Arthur	1,023,440.00	1,140,006.00	395,537.00	317,814.00
Gulf Refining Co., Port Arthur	2,888,675.42	2,428,914.10	219,332.45	157,256.00
Magnolia Petroleum Co., Beaumont	1,001,384.38	*654,228.33	.....	.....
Sinclair Refining Co., Houston	418,089.46	303,164.45	51,401.91	149,401.99
Humble O. & R. Co., Baytown	1,932,210.36	1,580,269.51	753,872.29	1,099,576.33
Marland Oil Co., Texas City	.....	†	.....	.....
Atlantic Oil Producing Co., Atreco	32,444.28	177,216.64	.....	.....
Galena Signal Oil Co., Houston	31,000.00	.....	.....	55,000.00
Deepwater Oil Refineries, Houston	.....	.....	.....	.....
Keen & Woolf Oil Co., Houston	.....	.....	.....	.....
Pure Oil Co., Smiths Bluff	219,724.86	255,233.41	.....	13,544.14
Totals	8,151,632.76	7,324,749.44	2,280,186.65	2,559,533.03

Company, Port—	Coastwise Crude— October	Coastwise Crude— November	Export Crude— October	Export Crude— November
Standard of Louisiana, Baton Rouge	407,433.00	406,645.00	.....	52,854.00
The Texas Company, Port Arthur	.....	.....	.....	.....
Gulf Refining Co., Port Arthur	.....	78,867.18	.....	.....
Magnolia Petroleum Co., Beaumont	698,872.80	*709,781.34	.....	.....
Sinclair Refining Co., Houston	481,011.42	439,716.60	.....	.....
Humble Oil & Refining Co.,				
Texas City	1,258,161.00	1,211,563.00	.....	.....
Baytown	720,751.00	794,617.00	.....	.....
Ingleside	1,337,119.00	1,410,842.00	.....	.....
Neches Terminal	74,298.00	60,054.00	.....	.....
Atlantic Oil Producing Co.,				
Atreco	369,544.38	286,299.61	.....	.....
Beaumont	280,950.54	457,483.34	.....	.....
Smiths Bluff	48,430.23	.....	.....	.....
Pasadena	.....	.....	.....	.....
Swiftsure Petroleum Co., Texas City	211,130.00	85,055.00	.....	.....
Pure Oil Co., Smiths Bluff	585,919.67	341,177.62	.....	.....
Sun Oil Co., Sabine Pass	821,572.00	.....	.....	.....
Crown Central Pet. Corp., Houston	87,370.00	80,000.00	.....	.....
Totals	7,382,563.04	6,362,091.69	.....	52,854.00

*Magnolia Petroleum Co. makes no distinction in reports between coastwise and export shipments.

†No report.

NEW LOCATIONS IN TEXAS PANHANDLE AND NORTH AND WEST TEXAS FIELDS

TEXAS PANHANDLE

Gray County

Ray & Massie's No. 1 A. Chapman, 330 feet south and 990 feet east of the NW cor. SW. Section 51, Block 25, H. & G. N. Survey. St. Clair Oil Co.'s No. 1 L. S. Stockton, 330 feet north and west of the SE cor. Section 35, W. R. Lee Survey. Smallwood and others' No. 1 W. H. Taylor, 1,200 feet south and 1,300 feet west of the NE cor. Section 10, Block B-2, H. & G. N.

NORTH CENTRAL AND WEST TEXAS

Archer County

Simms Oil Co.'s No. 21 J. H. Turbeville-A, 150 feet north and 39 feet west of the SE cor. Section 173, Robert Carson Survey, A-107. L. T. Burns and The Texas Company's No. 2 L. T. Burns-B, 150 feet south and west of the NE cor. Section 27, Club Ranch Subdivision. Consolidated Oil Co. and Apple & Brandeberry's No. 1 Stevens-Roach Co., 150 feet north and east of the SW cor. Section 4, John McCraney Survey, A-289. Frank Rose and others' No. 1 J. R. Garvey, 450 feet south and east of the NE cor. Section 1,854, T. E. & L. Survey.

Brown County

Pandem Oil Corp.'s No. 2 A. L. Curry, 783 feet south and 150 feet east of the NW cor. of the A. L. Curry tract out of the E. L. Betts Survey, A-70. Wheelock & Collins' No. 8 M. L. Smith, 150 feet north and east of the SW cor. of their lease out of Section 3, S. A. & M. G. Survey, A-850.

Callahan County

Prairie Oil & Gas Co.'s No. 2 S. P. Long, 150 feet north and 450 feet east of the SW cor. of the S. P. Long tract out of the G. M. Vigal Survey No. 798.

Coleman County

A. R. Forester and others' No. 1 Cora L. Davenport, 325 feet north and west of the SE cor. of the C. L. Davenport 40-acre tract out of the W. T. Dunlavy Survey, No. 259. Jordan-Foster and others' No. 1 Hunter Brothers, 150 feet north and east of the SW cor. of the E half of the Bradford Fowler Survey No. 493. Manhattan Oil Co.'s No. 1 O. B. Featherston, 990 feet south and 300 feet west of the NE cor. of Section 52, Block 2 G. H. & N. Survey.

McIntyre & Jameson's No. 1 Ben F. Dunn, 150 feet north and east of the SW cor. of the B. F. Dunn 130-acre tract out of the M. D. J. Trevino Survey, No. 669. J. S. Owens' No. 1 W A. Seals, 150 feet south and west of the NE cor. of the W. A. Seals tract out of the R. H. Bradley Survey No. 491. O. H. Shoup, Jr., and others' No. 1 Mrs. M. E. Chambers, 1,200 feet south and 2,500 feet west of the NE cor. of the M. E. Chambers 430-acre tract out of the H. Starnes Survey, No. 63. Speeirs & Allen's No. 1 J. H. Chandler, 330 feet south and 1,960 feet west of the NE cor. of the J. M. and W. C. Moffet Survey, No. 270.

Cooke County

A. V. Grant and others' No. 1 A. J. Dennis, 2,388 feet south and 666 feet west of the NE cor. of the H. Wilkerson Survey, A-1173. F. H. Lawson and others' No. 1 T. E. McFadden, 150 feet north and 550 feet west of the SE cor. of the G. M. Bonds Survey, A-69, being 150 feet north and west of the SE cor. of the T. E. McFadden tract. J. C. McFarland's No. 1 M. K. & T. R.R. Right of Way, 175 feet north and 100 feet west of the SE cor. of Block 8, Town of Muenster.

Crane County

Gulf Production Co.'s No. 11 State-Lassater, 330 feet south and 990 feet east of the NW corner of its lease out of the SW of Section 35, Block 30, University Land.

Grayson County

J. M. Burnham and others' No. 1 Texas Nursery Co., 3,168 feet south and 4,224 feet east of the NW cor. of the J. Strickland Survey, A-1068.

Jack County

Buttram Petroleum Co.'s No. 7 J. A. Jones Estate, 150 feet south and 550 feet east of the NW cor. of the south 400 acres of Section 5, S. P. R. R., A-550. Same company's No. 8 J. A. Jones estate, 150 feet south and 850 feet east of the NW cor. of the south 400 acres of Section 5, S. P. R. R., A-550.

Howard County

Gulf Production Co.'s No. 4 Otis Chalk, 1,560 feet north and 240 feet east of the SW cor. of its lease of 160 acres out of Section 125, Block 29, W. & N. W. Survey.

Montague County

Bridwell & Heydrick's No. 2 Mrs. M. H. Salmon and others'-C, 3,695 feet south and 5,069 feet west of the most easterly NE cor. of the S. Little Survey, A-417, being 1,200 feet south and 150 feet east of the NW cor. of their 125-acre lease (square) "C." Roy Carter & Rycade Oil Co.'s No. 2 R. W. Cunningham and others' 150 feet south and 450 feet east of the NW cor. of the L. B. Norton Survey, A-574, being 150 feet south and 750 feet west of the NE cor. of their 20-acre lease. Continental Oil Co.'s No. 20 J. W. Maddox-A, 150 feet north and 434 feet west of the SE cor. of Lot No. 13, S. H. Arnold Survey, A-5. Continental Oil Co.'s No. 25 J. W. Maddox-A, 150 feet north and 749 feet west of the SE cor. of Lot No. 13, S. H. Arnold Survey, A-5. H. E. Crenshaw and others' No. 1 W. T. Shockley, 150 feet south and east of the NW cor. of the S. A. & M. G. Survey, A-698. Oil Operators Trust Co.'s No. 1 E. J. Bouldin, 150 feet north and 1,775 feet east of the SW cor. of the C. Chacon Survey, A-140. Beckner and others' No. 1 G. W. Phillips, 175 feet northwest of the southeast line and 175 feet southwest of the northeast line of the southwest 160 acres of the G. W. Phillips 310-acre tract out of the J. B. Crabtree Survey No. 5, A-141.

Wichita County

Paul T. Menke and others' No. 1 W. H. Chilson, 300 feet south and 150 feet west of the NE cor. Section 20, Denton County School Land, League 4, A-417. Archer Oil Co.'s No. 1 Kemp & Kempner, 150 feet south and 1,860 feet east of the NW cor. Section 3, F. Peterswick Survey, A-343. Burr Lambert's No. 1 H. W. Barton, 3,791 feet north and 632 feet east of the SW cor. of the W. H. Spillers Survey, A-258. Electra Production Co.'s No. 6 T. L. Burnett and others' 650 feet south and 150 feet west of the NE cor. of the east 20 acres of the west 80 acres of the north 160 acres Section 7, H. T. & B. Survey, A-134. W. H. Hammon and others' No. 4 S. H. McCarty-C, 150 feet north and 750 feet west of the SE cor. of their "C" lease out of the W. R. Eaves Survey, A-447. Holbrook & Wood's No. 1 Deep, Kemp & Kempner, 1,746 feet south and 150 feet west of the NE cor. Section 82, Kemp Wichita Valley Land. Magnolia Petroleum Co.'s No. 13 J. A. Watkins, 2,000 feet south and 150 feet east of the NW cor. of Section 46, Kemp Wichita Valley Land. Petroleum Producers Co.'s No. 9 Shallow, M. A. Love-B, 25 feet south and 1,500 feet west of the NE cor. of Lot No. 18, W. S. Kennard Survey, A-171. Same company's No. 10 Shallow, M. A. Love-B, 200 feet south and 150 feet east of the NW cor. of the east 15 acres of the south 25 acres of Lot No. 11, W. S. Kennard Survey, A-171. Shappell Oil Co.'s No. 11 Kemp & Kempner-A, 1,200 feet south and 150 feet east of the NW cor. of Section 18, Kemp Wichita Valley Land. The Texas Company's No. 341 W. T. Waggoner, 1,370 feet south and 668 feet east of the NW cor. of Section 1, Seale & Morris Survey, A-393.

The Texas Company's No. 342 W. T. Waggoner, 1,270 feet north and 668 feet east of the SW cor. Section 2, Seale & Morris Survey, A-535. Same company's No. 343 W. T. Waggoner, 198 feet north and 1,550 feet west of the SE cor. of the S. Holloway Survey, A-533. Same company's No. 344 W. T. Waggoner, 2,310 feet south and 2,161 feet east of the SW cor. Section 19, G. C. & S. F. Survey, A-359, and located in Section 1, T. C. R. R. Survey. Vergate Oil Co.'s No. 2 Deep, J. A. Watkins Survey, 1,300 feet north and 155 feet east of the SW cor.

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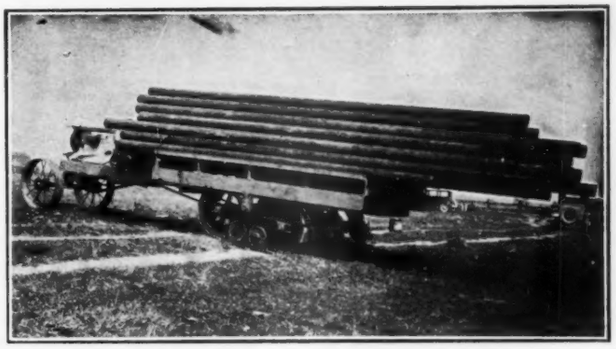

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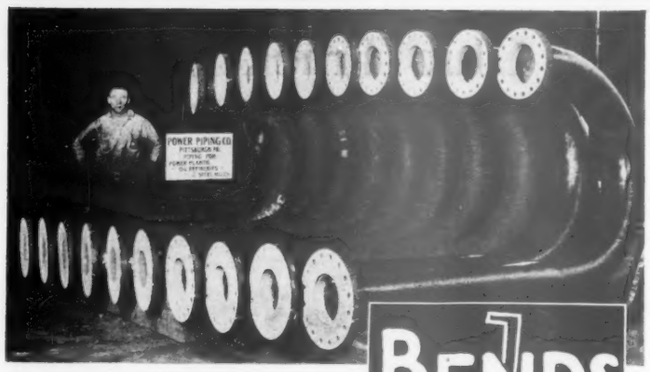

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of Section 46, Kemp Wichita Valley Land.

Wilbarger County

Fain-McGaha Oil Corp.'s No. 1 W. T. Waggoner-O, 205 feet north and west of the SE cor. of the NW of the NW of Section 50, Block 4, H. & T. C. Marland Oil Co.'s No. 1 W. T. Waggoner, C of Section 4, Block 17, H. & T. C. Survey. Milham Corp.'s No. 15 W. T. Waggoner-B, 1,617 feet south and 150 feet west of the NE cor. of its "B" lease out of Section 31, Block 4, H. & T. C. Same corporation's No. 3 W. T. Waggoner-C, 155 feet south and west of the NE cor. of the S half of the SW of the SE of Section 57, Block 4, H. & T. C. Petroleum Producers Co. and others' No. 2 W. T. Waggoner-A, 744 feet south and 137 feet west of the NE corner of Section 16, Block 4, H. & T. C. Petroleum Producers Co. and The Texas Company's No. 1 W. T. Waggoner, 150 feet north and east of the SW cor. of Section 21, Block 3, H. & T. C. Phillips Petroleum Co.'s No. 2 W. T. Waggoner-MM, 195 feet north and 660 feet west of the SE cor. of the NW of the NE of Section 30, Block 4, H. & T. C. Same company's No. 3 W. T. Waggoner-MM, 660 feet south and 152 feet west of the NE cor. of the NW of the NE of Section 30, Block 4, H. & T. C. Simms Oil Co.'s No. 1 I. G. Showers, 1,348 feet south and 150 feet west of the NE cor. of Section 20, Block 13, H. & T. C. Simms Oil Co.'s No. 1 W. T. Waggoner, 150 feet south and east of the NW cor. of the SW of the SE of Section 6, Block 5, H. & T. C.

Winkler County

Llano Oil Co.'s No. 1 F. B. Armstrong at the common corner of Sections 12, 13, 18 and 19, Block B-6, School Land. Republic Production Co.'s No. 2 Grisham-Hunter-A, 2,310 feet north and east of the SW cor. of Section 45, Block 26, School Land. Roxana Petroleum Corp.'s No. 2 Grisham-Hunter-A, 2,310 feet south and east of the NW cor. of Section 45, Block 26, School Land. Same corporation's No. 3 Ida Hendrick-B, 990 feet north and 330 feet west of the SE cor. of Section 29, Block B-5, School Land. Roxana Petroleum Corp. and others' No. 2 W. F. Scarborough, 2,310 feet south and west of the NE cor. of Section 1, Block C-22, School Land. L. C. Turman and others' No. 5 Ida Hendrick, 2,130 feet south and 330 feet west of the NE cor. of Section 29, Block B-5, School Land. L. C. Turman and others' No. 6 Ida Hendrick, 330 feet south and 990 feet west of the NE cor. of Section 29, Block B-5, School Land.

Young County

H. Hines and others' No. 1 W. W. Gregg, 150 feet south and west of the NE cor. of the west 40 acres of the south 80 acres of the J. J. Cantrell Survey, A-1,586. Robert Oil Corp.'s No. 1 G. Stewart, 1,260 feet south and 3,050 feet east of the NW cor. of the D. Dawson Survey, A-76. Same corporation's No. 1 G. Stewart-A, 450 feet north and 150 feet west of the SE cor. of the M. Harmon Survey, A-1,440. Hinson & Tidwell's No. 1 S. Ragland, 160 feet north and 800 feet east of the SW cor. of the W. J. Akers Survey, A-1,361. Snowden & McSweeney's No. 3 J. J. Shirley and others' 775 feet south and 300 feet east of the most westerly northwest cor. of the J. J. Shirley and others' 877.6-acre tract out of the John Conner Survey, A-57. P. J. White and others' No. 1 Eddleman Brothers Saddle Co., 670 feet southwest of the northeast line and 156 feet northwest of the southeast line of Section 2,693, T. E. & L. Survey, A-1,132.

Corrected Locations

In Howard County: Vitek Oil Co.'s No. 1 H. R. Clay, 1,532 feet north and 207 feet west of the SE cor. of Section 126, Block 29, W. & N. W. Survey.

In Montague County: The Texas Company's No. 1 J. S. Dennis, 962 feet north and 679 feet west of the SE cor. of the J. S. Dennis 150-acre tract out of the S. Little Survey, A-417.

In Wichita County: W. H. Hammon and others' No. 2 S. H. McCarty-C, 150 feet north and 450 feet west of the SE cor. of the west 40 acres of the east 60 acres of the W. R. Eaves Survey, A-447.

In Winkler County: Magnolia Petroleum Co.'s No. 6 Ida Hendrick, 330 feet south and 1,650 feet west of the NE cor. of Section 29, Block B-5, School Land. Murchison Oil Co. and others' No. 1 Grisham-Hunter-B, 990 feet north and 990 feet east of the SW cor. Section 35, Block B-5, School Land. Same company's No. 2 Grisham-Hunter-B, 990 feet north and 330 feet east of the SW cor. Section 35, Block B-5, School Land. L. C. Turman and others' No. 4 Ida Hendrick, 990 feet south and 990 feet west of the NE cor. of Section 29, Block B-5, School Land.

EVIDENCE IN BRANSON WELL TO REVERSE IDEAS

(Continued from Page 154)

the wells as they are drilled into the sand. Salt domes comprise a different type of structure, where the doming of the strata is caused by the upthrust of a plug of salt; but the important part is that at least a semblance of dome is formed, which traps whatever oil may be gathered to it by surrounding waters.

Under such conditions, then, experience has shown us that if a well is drilled down through the top of an anticline and the cap rock is gone through and the reservoir sand is punctured, the oil may be recovered. Not all anticlines contain oil. Experience in Texas, Oklahoma and Kansas has also taught us that in that region the sands and limestones of the Pennsylvanian series are the ones which contain oil; though a very interesting fact is that the huge production of the Seminole Field in Oklahoma is coming from the underlying Ordovician formation, which is very nearly the oldest sedimentary formation known, laid down millions of years before the Pennsylvanian.

The nearest commercial production to Las Animas County, Colorado, found under these conditions is in two localities: the Panhandle district, Texas, some 120 miles southeast, and in the Ramsey Brothers wells of Cimarron County, in the western panhandle of Oklahoma, some 60 miles southeast of Branson, Colo. The Pennsylvanian formation is the reservoir rock of these fields, and also of the majority of the Oklahoma and Texas fields. The Pennsylvanian is known to extend into Colorado and has now been encountered in the Parker Club well. Whether or not it will be saturated with oil to the extent of yielding commercial production remains to be seen.

Anticlinal Structure

As to the anticlinal structure at the location of the Parker Club well, both regional doming and local doming have been considered, as will be described. First it is to be pointed out that the oldest sediments here, including the Pennsylvanian, were first laid down, and were somewhat folded into anticlines and synclines. These "folds" are very gentle undulations, with not more than 200 feet of chamber—that is difference in elevation between the crest of the dome or anticline and the valley of the adjacent synclines—in a horizontal distance of 5 or 6 miles. Later on, the Red Beds were laid down on the Pennsylvanian, during Permian and into Triassic times, and this was followed by gentle folding of all of the formations. Then came the deposition of the Cretaceous (the Jurassic is missing) across the tilted and eroded strata of the Red Beds, and once again the entire series was subjected to folding of some degree.

Now, the folds in the Cretaceous are can be read in the disposition of the Dakota sandstone, an excellent marker bed; but what the exact anticlinal and synclinal folding can be in the Pennsylvanian strata 4,000 feet beneath, no one can say.

It would appear reasonable, however, to believe that where an unusually great arch can be seen in the Dakota (Cretaceous) sandstone there will probably be general arching of the underlying strata. Such arching would be conducive to the accumulation of oil to the highest point of arching, providing the water is present to accomplish this.

The Parker Club well is located on the great gentle arch that has long been known, whose highest point lies in Union County, New Mexico, some 35 miles

south of the Colorado-New Mexico line. The published geology concerning this dome was very meager, the bulletins of the United States Geological Survey by Dr. Willis T. Lee and N. H. Darton supplying the principal information, with certain contributions like that of John L. Rich in the July, 1921, Bulletin of the American Association of Petroleum Geologists (Vol. V, No. 5). Mr. Rich, for instance, did not recommend the New Mexico portion of the dome, due to granite observed east of Estancia Valley some 200 miles south, and which is believed to extend toward the northeast. This opinion represented the very dominant theory held by many geologists that granite would lie close to the surface in the Branson area. The well drilled by the United States Oil Co. in Union County, New Mexico, was reported to have encountered granite wash at 2,700 feet, but careful investigation by the writer failed to confirm it.

Now, it is believed possible by the writer that deep-seated granite does form the backbone of this arch; that is, that there is a deep buried granite ridge, the peaks of which are observed at the surface some 200 miles south. The location of the Parker Club well was selected at a point where the granite would be below 5,000 feet, and also where the Pennsylvanian formations could be present and arched.

Granite Absent; Pennsylvanian Present

At a present depth of 3,787 feet, this has been demonstrated; namely, that the granite is absent, and the Pennsylvanian formation is present. The lower part of the Pennsylvanian may contain oil.

It is often asked whether this well is on structure. It is, indeed, on the great structure and possibly also on what I may call one of the Dakota structures. Dorsey Hager, writing in The Oil and Gas Journal for September 18, 1927, refers to such local structures as "warts on the cucumber." Then, it is asked whether this well is on the same structure as the Ramsey and Sinclair wells in Cimarron County, Oklahoma. As to that, a yes-and-no answer may be given. It happens that the eastern flank of the great arch referred to does not in many miles flatten out to a perfect horizontal, nor reverse its dip in a manner that usually signifies the edge of a structure. Instead, the east flank persists in an eastward dip of 20 feet to the mile to and beyond the Ramsey wells; so that the Ramsey wells are in a sense still on the eastern flank of the great arch. The formations logged in the Ramsey and Parker Club wells are nearly identical, as the Ramsey wells start in the top of the Red Beds and encounter the Pennsylvanian at about 3,800 feet.

However, at a distance of some 50 miles from the Parker Club well, the Ramsey and Sinclair wells would not ordinarily be said to be on the same structure, meaning that they are not at all dependent upon it for the accumulation of their oil. Those operators have contoured very carefully, by survey, their own local structures, and their wells are located at the apex of each of their structures, as mapped.

It will be noted that in the Branson area, the Red Beds are not at the surface and therefore no local structure can be mapped in the Red Beds in the vicinity of the well.

Formations Identical

The Sinclair well, located between the Ramsey wells and the Parker Club well, has encountered formations identical with the other wells in question.

The writer recently made a 1,000-mile scouting tour through southeastern Colorado, southwestern Kansas, through the Oklahoma and Texas Panhandles, and northeastern New Mexico, particularly to ascertain the status of all drilling wells, and to observe their bottom-hole cuttings. At Borger, in the Texas Panhandle Field, the reservoir rock is either a rotten porous limestone, or else granite wash from the buried granite ridge encountered in that area—sometimes the lime, and sometimes the granite wash. The Borger Field is expected to produce somewhat better than 20,000 bbls. per acre. The average production at Borger is now about 80 bbls. per well per day.

In regard to the production of gasoline from the Mountain States well, located some 18 miles west of Branson where a casinghead plant is now producing some 600 gallons of gasoline per day, the Parker Club well will never encounter this same gas for the reason that it occurs in the Pierre shales, which are stratigraphically higher than the Dakota sandstone; and the Parker Club well starts in the Dakota sandstone, and proceeds downward from that horizon. The oil production in the Fort Collins and Wellington districts by the Union Oil Co., in the northeastern portion of Colorado, is obtained from the Dakota itself, or else the Morrison, which immediately underlies it. Therefore, any production that may be secured in the Parker Club well will, of necessity, be obtained under conditions similar to the Oklahoma and the Texas Panhandle conditions, and not at all from the horizons that produce in other parts of eastern Colorado or Wyoming.

It is believed that the Parker well will encounter both the conditions of deep water deposition, conducive to shales which are the origin of oil, as well as off-shore deposition, conducive to suitable reservoir rocks.

The factors against the accumulation of oil will be the lack of either of the two foregoing types of sediments; also the possible dissipation of oil or gas by igneous dikes in the locality.

On the whole, the development work has accomplished the following:

The well has been drilled on structure similar to the successful structures of Kansas, Oklahoma, and Texas; it has proved that the granite lies below 3,600 feet, rather than near the surface; it has proved the thickness of the Red Beds in this area, and has contributed greatly to geologic knowledge; and at the present depth has encountered the Pennsylvanian formation, in the lower part of which it is hoped that oil will be secured, since this is the horizon of the producing fields farther to the east.

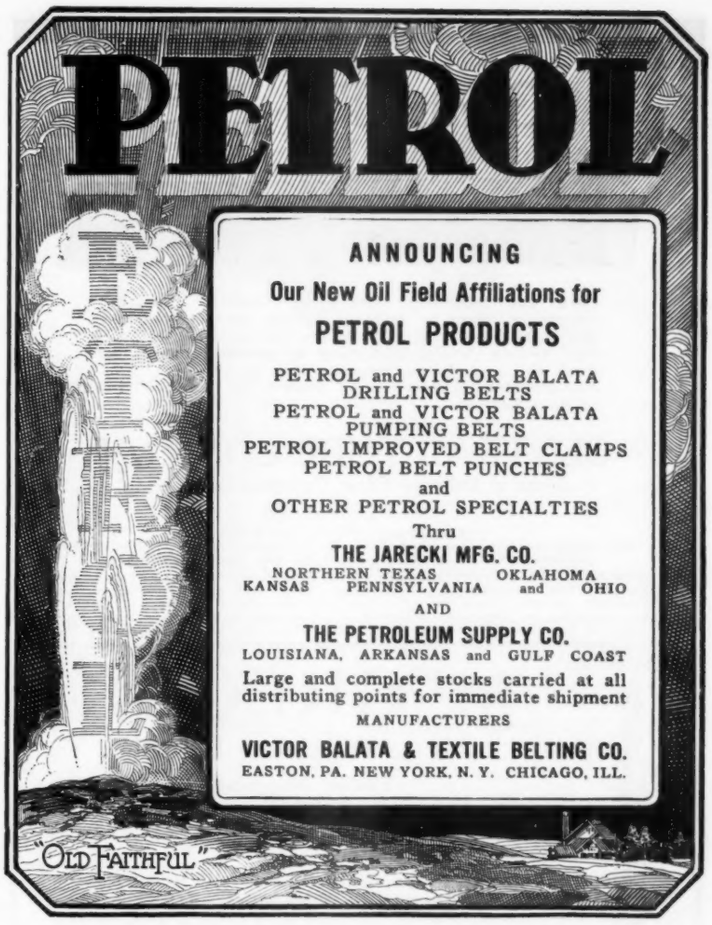
The writer has studied the territory fairly thoroughly since 1922, before the Panhandle Field or the Ramsey wells were drilled. The published geology of the region, including private reports, comprises a bibliography of some 43 treatises on the regional and local geology. These are government and state bulletins, folios, professional papers and geological society papers. On the whole, the new evidence presented by this well verifies the knowledge of the regional geology to a remarkable degree, and at the same time completely reverses certain ideas which were prevalent among geologists as to the depth to granite or the thickness of the Red Beds in this particular locality.

DEVELOPMENTS IN AUSTRALIA

Mr. Marr, minister without portfolio, stated in the Australia House of Representatives, that Doctor Woolnough, professor of geology at Sydney University, who is directing operations for the search of oil in Australia, had informed him that as the result of a visit to Queensland he was optimistic of the possibility of payable oil being discovered there. Investigations at Roma had shown that the reported discovery of oil was genuine and of great importance, though that it did not necessarily follow that the long-awaited discovery of petroleum in commercially important quantities was an accomplished fact.

DEVELOPMENT OF SAKHALIN

A new Russian trust, the Sakhalin Naft, has recently been organized to develop the petroleum resources of the Okha Field on the island of Sakhalin. The production program for the first year has been placed at 1,000,000 poods, and the market for this product will be particularly China and Japan. It is reported that the necessary technical equipment is about to be purchased abroad.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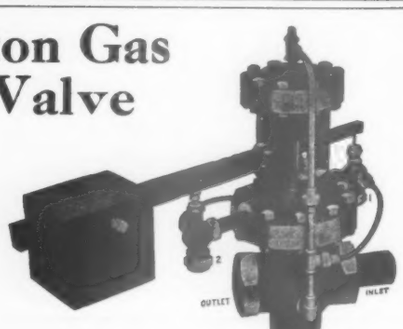
For Natural Gas Gasoline Plants



The Fulton Relief Valve automatically allows the treated gas to escape, after the compression has reached the stage at which all gasoline is removed from the gas under treatment, and permits a fresh supply of untreated gas to enter. The weights on the lever can be accurately adjusted to operate at the desired point of compression. When this point is reached the valve blows until the pressure falls to 20 or 25 pounds, or until the treated gas has escaped.
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47

IMPORTANT DECISION ON OIL INCOME TAX

By Charles E. Kern
Washington Bureau, The Oil and Gas Journal

WASHINGTON, D. C., Jan. 7.—An important decision of widespread application governing the payment of income tax in the oil industry has been rendered by the United States Board of Tax Appeals in the case of Charles H. Merillat.

Mr. Merillat, an attorney of this city and the owner of Indian oil and gas leases, asked a redetermination of his income tax liability for 1921. The commissioner had determined a deficiency of $884.11. Mr. Merrilat alleged that the commissioner committed an error in holding that moneys paid annually in renewal of Indian oil and gas leases are not deductible from an oil and gas Indian lessee's income but must be charged to capital account and deducted only upon sale or development of the leases or final loss of the right of renewal of the leases.

Beginning with 1912, Mr. Merillat as lessee secured several oil and gas leases from the Otoe tribe of Indians. These leases contained provisions for paying annual rental and provided that such payments "shall not be credited upon royalties afterwards accruing on production, except that if oil be actually produced such proportion of the payment for that year shall be credited on the royalty on production in that year as that proportion of the year subsequent to the beginning of production bears to the whole year." The leases were substantially identical except in one the annual payments were termed "advanced royalty" and "rental." In the case of oil being produced royalty was to be paid on it, but during 1921 no oil was produced on any of the leases. The commissioner disallowed all of the payments provided in the absence of oil production.

In rendering the opinion of the board, Judge Green upheld the contention of Mr. Merrillat and said: "The total payments of $1,203.45 as such are deductible under Section 214(2)(1) of the Revenue Act of 1921, which provides that in computing net income there shall be allowed as deductions:

"'* * * * rentals or other payments required to be made as a condition to the continued use or possession, for purposes of the trade or business, or property to which the taxpayer has not taken or is not taking title or in which he has no equity;'

"Some of the payments were termed in the leases as 'advanced royalty' and by the express provisions of the leases they could not be credited against any production other than that of the current year. Under such circumstances, we believe the amounts paid as such are deductible in the current taxable year."

INVESTIGATORS AT WORK ON UNIVERSITY LANDS

FORT WORTH, Tex., Jan. 7.—Three special investigators, one representing the regents of the University of Texas directly and the other two from the Attorney General's department at Austin, are now in West Texas oil fields gathering data for the trial of the civil suit now in the Fifty-third District Court at Austin against certain oil companies operating on University oil lands in Reagan County. R. G. Storey, member of the board of regents, said.

This suit, filed in October, 1926, seeks, among other things, the cancellation of leases on which about 27,000,000 bbls. of oil have been produced and the payment of over $1,098,000 more in royalty to the University of Texas.

"We have had our special investigator at work for several months," Mr. Storey said, "and I know that the Attorney General's department has likewise been on the case for some time. These men are gathering facts about oil operations by the various companies that are named in our petition."

Early trial in this case, which has no connection with the test of the constitutionality of all leases on University lands before the State Supreme Court is expected, Mr. Storey said.

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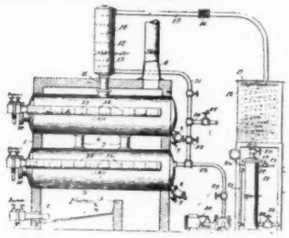
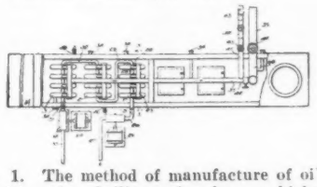
Recent Patents

1,649,102. Process of Treating Emulsified Oils. Gustav Egloff and Harry P. Benner, Chicago, Ill., assignors to Universal Oil Products Co., Chicago, Ill., a corporation of South Dakota. Filed September 18, 1920, Serial No. 411,340. Renewed February 12, 1927. Two claims. (Cl. 196—5.)



2. A process for dehydrating and cracking emulsified petroleum oil consisting in feeding a bulk supply of oil into a still, in then first subjecting the oil to a surface heating only to dehydrate the same, in then applying heat to the entire body of oil while under a superatmospheric pressure to crack said oil in the still, and in discharging the vapors from said cracking operation for condensation and collection.

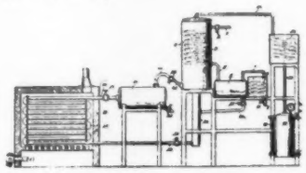
1,652,394. Method and Apparatus for Treating Hydrocarbons. Charles S. Corning, Rockford, Ill., assignor to Warren S. Corning. Chicago, Ill. Filed September 8, 1923. Serial No. 661,662. Thirteen claims. (Cl. 196—47.)



1. The method of manufacture of oils with a low boiling point from a higher boiling mixture of hydrocarbon oils, containing low boiling hydrocarbons consisting in conducting said mixture in a stream of considerably greater width than thickness and applying heat thereto so as to vaporize and separate therefrom the low boiling point oils with a minimum amount of cracking, separately withdrawing different portions of the vapors from the residue at different stages of the treatment thereof, and thereafter cracking the vapors separately by heating the same in cracking zones.

3. In an oil refining system, a furnace, a plurality of retorts in said furnace, means for passing oil in thin sheets continuously through said retorts, means for separately withdrawing vapors from above said retorts, a plurality of independent means for cracking the vapors whereby the vapors from each of said retorts is treated independently of the vapors of the other retorts and means for withdrawing the independent cracked vapors from said last means and immediately blending them.

1,652,166. Process for Converting Petroleum Oils. Carbon P. Dubbs, Wilmette, Ill., assignor to Universal Oil Products Co., Chicago, Ill., a corporation of South Dakota. Filed February 16, 1922. Serial No. 536,841. Two claims. (Cl. 196—5.)



1. A process for simultaneously dehydrating and cracking petroleum oil, consisting in passing the oil in a confined stream through a dephlegmating zone where said oil is subjected to a temperature above the boiling point of water and

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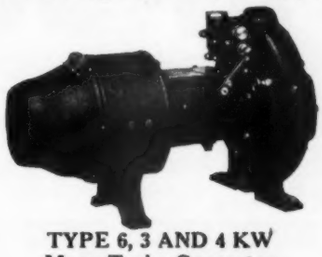

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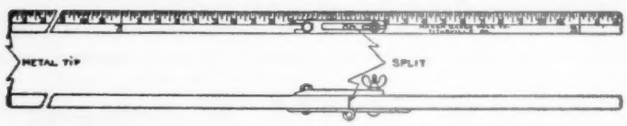

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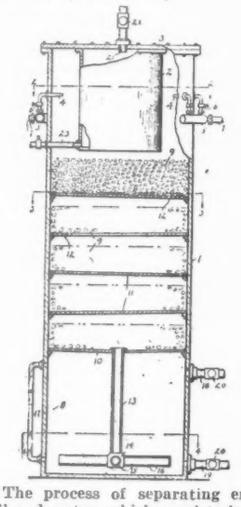
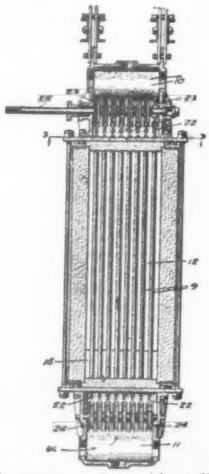
wherein it acts as a dephlegmating medium for the vapors passing through said dephlegmating zone, in then introducing this preheated oil to an enlarged zone wherein the water vapors are relieved from the oil, in discharging such vapors, in continuously taking off dry oil from said enlarged zone and passing it in a restricted stream through a heating zone wherein it is raised to a cracking temperature, in thence passing such heated oil to an enlarged reaction zone, passing the evolved vapors from said zone to said dephlegmating zone and in discharging the uncondensed vapors from said dephlegmating zone, and in discharging the uncondensed vapors from said dephlegmating zone for condensation and collection.

1,650,514. Process of Dehydrating Oil. Bud Hildebrand, Long Beach, Calif. Filed April 2, 1925. Serial No. 20,054. 2 Claims. (Cl. 196—5.)



1. The process of separating emulsified oil and water, which consists in compressing the emulsion and then expanding the same and causing forcible impact thereof against a heated surface, then passing the emulsion in a tortuous course through restricted spaces between particles of succeeding layers of finely-divided material, and finally settling the emulsion so as to cause all of the oil to rise through the water.

1,650,169. Process of and Apparatus for Distilling Oil. George W. Wallace, San Francisco, and Harry K. Ihrig, Berkeley, Calif.; said Ihrig assignor to said Wallace. Filed September 17, 1923. Serial No. 663,033. 4 Claims. (Cl. 196—52.)



1. The process of cracking oil which comprises subjecting a stream of oil to sufficient heat and pressure to crack the oil in the stream and simultaneously continuously circulating the stream of oil through the tube by means having a catalytic action on the cracking reaction.

2. An apparatus for cracking oil com-

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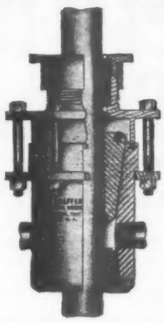
OLINDA TYPE
Casing and Tubing Head



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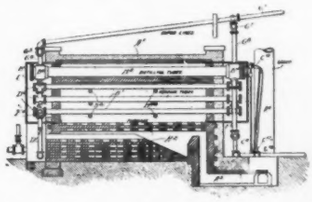
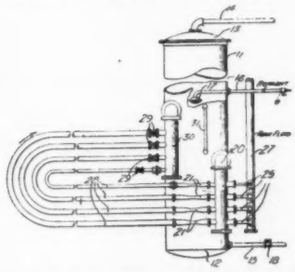
prising a still provided with a plurality of pairs of tubes, means for heating said tubes and endless devices having a catalytic action on the cracking reaction movable through said pairs of tubes to remove the deposited carbon from the walls of the tubes said devices moving upwardly through one tube of a pair and downwardly through the other.

1,652,167. Process of Treating Hydrocarbon Oils. Carbon P. Dubbs, Wilmette, Ill., assignor to Universal Oil Products Co., Chicago, Ill., a corporation of South Dakota. Continuation of application Serial No. 209,897, filed January 2, 1918. This application filed May 2, 1923. Serial No. 636,104. Renewed March 10, 1927. 4 Claims. (Cl. 196—59.)



1. A process of converting heavy into lighter hydrocarbons, consisting in passing the oil through a relatively small coil in a heating zone, thence passing the oil through a relatively larger vapor generating or distilling coil, also seated in said heating zone, taking off vapors from said distilling coil and condensing the same, maintaining a forced cyclic circulation of the oil from the small coil to the distilling coil and back to the small coil and during said treatment, maintaining a pressure in excess of 50 pounds to the square inch on the oil in said coils.

1,652,399. Method of and Apparatus for Treating One Fluid by Another. Samuel J. Dickey, Los Angeles, Calif., assignor to General Petroleum Corp. of California, a Corporation of Delaware. Filed January 16, 1923. Serial No. 613,064. 9 Claims. (Cl. 196—45.)



1. In a continuous method of refining oil, steps for intimately mixing the oil with a reagent heavier than and insoluble in the oil and for repeatedly utilizing the reagent, said steps comprising: maintaining a layer of reagent in a substantially closed vessel, to any certain level below the top thereof, the remainder of space in the vessel containing oil; continuously introducing fresh reagent into said vessel; continuously withdrawing spent reagent at such rate as to maintain the level of reagent; continuously injecting into the vessel a confined stream of raw oil under pressure by a pressure producing means; inducing into and solely by means of the said oil stream a stream of the reagent from the reagent within said vessel; intermixing the two streams while confined solely through the agency of the velocity energy of the stream of raw oil, said induction and intermixing taking place beyond and on the discharge side of the pressure producing means, and discharging the intermixed streams into the same vessel for circulating and repeatedly intermixing the reagent with the raw oil, the treated oil and the reagent continuously separating by gravity difference; and continuously discharging treated oil from the top of the vessel at a rate substantially equal to the rate of feed of raw oil.

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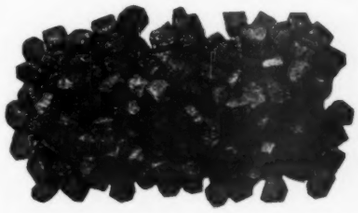
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Oklahoma-Kansas and Eastern Pipe Line Report

OKLAHOMA-KANSAS

Pipe Line Statement for November

Runs

	Month	Dy. Av.
*Prairie Pipe Line Co.	4,470,000	149,000
Gulf Pipe Line Co.	1,620,453	54,015
Texas Pipe Line Co.	1,314,796	43,826
Empire Pipe Line Co.	1,344,761	44,825
Magnolia Pipe Line Co.	2,045,554	68,185
Cosden Pipe Line Co.	1,059,003	35,300
Sinclair Pipe Line Co.	2,752,710	91,757
Oklahoma Pipe Line Co.	3,871,727	129,057
*Other lines	7,918,273	263,943
Total November	26,397,277	879,908
Total October	27,729,663	894,506
Difference	1,332,386	14,598

Shipments

*Prairie Pipe Line Co.	5,460,059	182,002
Gulf Pipe Line Co.	1,367,498	45,583
Texas Pipe Line Co.	974,190	32,473
Empire Pipe Line Co.	1,250,114	41,670
Magnolia Pipe Line Co.	1,837,349	61,245
Cosden Pipe Line Co.	867,939	28,931
†Sinclair Pipe Line Co.	2,938,888	97,963
Oklahoma Pipe Line Co.	3,629,478	120,982
*Other lines	7,590,522	253,018
Total November	25,916,037	863,867
Total October	26,128,011	842,838
Difference	211,974	21,029

Stocks

*Prairie Oil & Gas Co.	31,700,000
*Prairie Pipe Line Co.	2,500,000
Gulf Pipe Line & Gypsy Oil Co.	10,126,654
The Texas Company	5,513,789
Empire Pipe Line Co.	4,577,545
Cosden Pipe Line Co.	3,447,632
*Sinclair Crude Oil Pur. Co.	20,550,000
Magnolia Petroleum Co.	6,946,641
Oklahoma Pipe Line Co.	2,970,487
Carter Oil Co.	15,959,813
*Other lines	10,560,000
Total November	114,952,561
Total October	111,418,650
Difference	3,433,911

*Estimated. †Prairie shipments include Texas crude oil and Sinclair shipments include Texas and Wyoming crude oil.

Note: Stocks do not include approximately 5,200,000 bbls. of crude oil held in storage on private tank farms and leases and 2,000,000 bbls. of Texas Panhandle crude oil in storage in Oklahoma and Kansas.

EASTERN PIPE LINES

Runs From Wells

In the following table will be found the regular receipts from wells by various pipe lines in New York, Pennsylvania, West Virginia, Ohio, Kentucky and Indiana for October and November.

	Oct. '27	Nov. '27
Buckeye P L		
Nat. Transit	153,605.94	138,601.66
S W Pa P L	82,744.33	85,325.67
Eureka P L	385,550.68	364,643.37
(Macksb'g)	317,058.69	314,900.41
Buckeye P L (Cleve)	10,997.15	12,030.90
Buckeye P L (Lima, etc)	125,719.20	105,956.52
Indiana P L	8,595.58	7,189.17
Cum'land P L	243,106.02	236,613.60
N Y Transit	23,121.86	21,173.39
Tidewater P L	189,161.99	182,622.58
Pure Oil	161,298.70	152,816.95
Emery P L	55,417.68	56,468.37
Paragon Dev.	26,098.63	27,069.78
Stoll Oil Ref.		12,843.77
Total	1,782,476.45	1,718,256.14
Daily Avg.	57,499.24	57,275.20

Note—Indian Refining Co. also reported other receipts of 341,754.30 bbls. Paragon Refining Co. had other receipts of 167,197.21 bbls. Paragon Development had other receipts of 1,496.95 bbls. Pure Oil had other receipts of 10,281.87 bbls.

Petroleum Deliveries

The following tables exhibit the shipments of regular deliveries of various pipe lines in New York, Pennsylvania and Indiana for October and November.

	Oct. '27	Nov. '27
Nat. Transit	412,898.65	319,056.21
S W Pa P L	396,020.73	375,867.86
Eureka P L	181,662.67	192,438.78
Buckeye P L (Macksb'g)	174,666.60	152,463.55
Buckeye P L (Cleve)	879.27	969.42
Buckeye P L (Lima, etc.)	904,624.25	1,013,132.41
Indiana P L	914,394.35	1,116,002.96
Cum'land P L	148,084.83	145,443.98
N Y Transit	263,563.56	175,265.57
Northern P L	190,733.21	178,350.74
Tidewater P L	157,676.38	111,596.80
Pure Oil	185,736.82	177,134.58
Emery P L	56,581.39	54,750.52
Paragon Ref.	165,399.67	168,246.24
Indian Ref	379,151.78	319,181.35
Paragon Dev.	25,962.84	29,362.95
Total	4,558,028.00	4,529,263.92
Daily Avg.	147,036.39	150,975.46

Gross Stocks

The gross stocks held by various pipe lines in the oil producing sections of New York, Pennsylvania, West Virginia, Ohio, Indiana and Kentucky at the close of October and November.

	Oct. '28	Nov. '27
Nat. Tran.	1,075,415.42	1,108,601.66
S W Pa P L	690,515.74	715,534.91
Eureka P L	1,712,937.61	1,729,737.61
Buckeye P L (Macksb'g)	393,929.95	396,287.92
Buckeye P L (Cleve)	54,908.39	50,691.02
Buckeye P L (Lima, etc.)	4,863,379.96	4,695,838.16
Indiana P L	666,852.50	647,290.51
Cum'land P L	621,345.31	594,822.46
Southern P L	441,618.38	386,756.90
N Y Transit	436,043.71	510,190.02
Northern P L	541,552.22	547,199.31
Pure Oil	410,038.20	390,386.96
Emery P L	11,001.49	12,543.82
Paragon Ref	13,919.16	13,179.46
Indian Ref.	106,017.05	129,403.33
Paragon Dev.	8,185.55	7,276.88
Total	12,047,660.64	11,939,740.93
Increase	165,055.79	
Decrease		107,919.71

Grades of Oil

The following table shows the amount of the different grades of oil held by the Eastern pipe lines at the close of October and November showing the gross stocks of the above fields:

	Oct. '27	Nov. '27
Pennsylvania	4,160,309.06	4,076,710.10
Lima	1,149,122.63	1,177,864.75
Kentucky	1,065,864.24	1,089,857.44
Mid. Cont.	5,576,783.90	5,519,125.98
Illinois	95,580.81	76,182.66
Total	12,047,660.64	11,939,740.93

Daily Average Runs

The following table shows the daily average runs of the Pennsylvania, Lima and Kentucky oil fields for the past four years:

	1924	1925	1926	1927
Jan.	62,638	56,831	55,630	56,209
Feb.	68,023	60,606	60,394	61,298
March	68,721	60,575	61,644	63,247
April	71,058	63,062	63,019	60,327
May	63,942	59,217	60,581	60,284
June	63,230	61,270	64,131	62,757
July	64,208	62,639	63,206	58,574
Aug.	59,942	59,686	61,815	60,870
Sept.	62,930	62,510	64,639	60,285
Oct.	64,976	60,995	62,704	57,499
Nov.	56,282	59,350	61,774	57,275
Dec.	55,814	57,974	58,775	

Daily Average Shipments

The following table gives daily average shipments from the Pennsylvania, Lima and other fields for the past four years:

	1924	1925	1926	1927
Jan.	145,518	157,889	156,056	141,227
Feb.	148,732	160,863	159,488	138,534
March	147,098	154,591	150,239	133,777
April	147,614	151,429	152,371	149,220
May	134,997	146,995	160,998	144,394
June	143,010	149,467	160,257	149,772
July	124,187	161,338	160,275	151,350
Aug.	123,120	161,730	151,929	138,658
Sept.	127,325	156,719	158,915	144,213
Oct.	123,170	145,388	161,132	147,036
Nov.	124,400	143,582	152,668	150,975
Dec.	151,392	159,162	136,428	

Gross Stocks

In the following table will be found the gross stocks of the various lines of the Pennsylvania, Lima and Kentucky oil fields, including oil received from other lines at the close of each month for the past three years:

	1925	1926	1927
Jan.	11,353,276	9,859,170	9,718,[illegible]
Feb.	11,192,924	9,579,354	10,113,[illegible]
March	11,158,297	9,438,292	10,794,[illegible]
April	11,062,082	9,805,851	11,112,[illegible]
May	11,207,562	9,531,757	11,369,[illegible]
June	11,093,796	9,585,964	11,493,[illegible]
July	11,067,453	9,734,687	11,453,[illegible]
Aug.	10,974,491	9,118,947	11,989,[illegible]
Sept.	10,781,753	9,433,732	12,212,[illegible]
Oct.	11,086,850	9,269,806	12,047,[illegible]
Nov.	11,068,158	9,257,667	11,939,[illegible]
Dec.	10,458,445	9,454,512	

Franklin Pipe Line Co.

The following table exhibits the condition of the Franklin Pipe Line at the close of business for the months named and not counted in the stocks and averages reported above.

1926—	Runs	Shipments	Stocks
Nov.	2,810.60	1,664.55	15,817.[illegible]
Dec.	2,847.52	5,561.11	13,103.[illegible]
1927—			
Jan.	2,641.54	1,470.42	14,274.[illegible]
Feb.	2,764.30	1,082.82	15,956.[illegible]
March	2,587.20	1,878.56	16,664.[illegible]
April	2,834.23	1,512.65	17,986.[illegible]
May	2,768.48	539.29	20,215.[illegible]
June	2,946.29	664.40	22,497.[illegible]
July	3,153.39	1,271.61	24,374.[illegible]
Aug.	3,057.89	8,713.11	18,719.[illegible]
Sept.	3,309.56	2,656.48	19,372.[illegible]
Oct	2,801.32	1,226.99	20,946.[illegible]
Nov.	2,746.50	2,220.53	21,472.[illegible]

The Illinois Field

The following table gives the report of the Illinois Pipe Line Co. in Illinois:

Gross stocks, December 1	2,107,943.[illegible]
Other receipts	577,687.[illegible]
Runs from wells	291,264.[illegible]
Regular deliveries	354,406.[illegible]
Other deliveries	474,876.[illegible]

The amount of Illinois oil run by the Tidewater Pipe Co. in November was 87,933.46 bbls. and deliveries were 60,778.56 bbls. Adding these figures to those of the Illinois Pipe Line Co. makes the runs and deliveries as follows:

1926—	Runs	Deliveries
November	651,263.33	498,433.[illegible]
December	668,909.58	587,947.[illegible]
1927—		
January	621,421.03	530,085.[illegible]
February	596,831.16	476,956.[illegible]
March	727,593.91	554,947.[illegible]
April	593,225.97	444,818.[illegible]
May	728,759.40	543,192.[illegible]
June	640,975.85	532,217.[illegible]
July	613,901.30	484,903.[illegible]
August	651,276.40	529,331.[illegible]
September	619,589.49	433,212.[illegible]
October	601,099.25	408,287.[illegible]
November	605,621.14	415,185.[illegible]

Tidewater Pipe Co., Ltd., also delivered in November 263,645.39 bbls. of Oklahoma oil.

AVERAGE DAILY RECEIPTS OF CALIFORNIA OIL AT ATLANTIC AND GULF COAST PORTS

Average bbls. per day—	ATLANTIC PORTS						GULF COAST PORTS					
	Baltimore	Boston	New York	Philadelphia	Others	Total	Galveston	New Orleans Baton Rouge	Port Arthur Sabine Pass	Tampa	Total	Total All Ports
July	13,484	27,290	33,065	9,129	5,451	78,419	.....	.....	.....	.....	968	79,387
August	18,516	3,065	48,129	17,323	26,000	113,032	.....	.....	.....	.....	.....	113,032
September	23,033	6,967	51,400	14,567	19,533	115,500	.....	.....	.....	.....	.....	115,500
October	20,936	4,355	47,968	14,129	14,387	101,774	.....	.....	.....	.....	.....	101,774
November	9,433	2,833	23,033	15,166	4,933	55,400	.....	.....	.....	.....	.....	55,400

AVERAGE DAILY IMPORTS OF PETROLEUM AT PRINCIPAL UNITED STATES PORTS

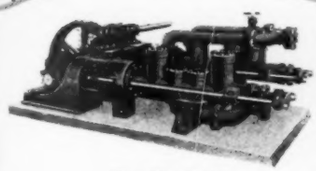
Average bbls. per day—	ATLANTIC PORTS						GULF COAST PORTS					
	Baltimore	Boston	New York	Philadelphia	Others	Total	Galveston	New Orleans Baton Rouge	Port Arthur Sabine Pass	Tampa	Total	Total All Ports
July	22,226	10,387	80,193	7,193	38,710	158,710	3,226	25,065	806	.....	29,096	187,806
August	19,323	9,032	80,903	14,258	31,821	155,387	2,097	21,161	.....	.....	23,258	178,645
September	28,033	11,433	85,500	12,800	37,700	175,467	5,667	19,233	.....	3,600	28,500	203,967
October	26,064	13,097	79,355	3,838	34,097	156,451	1,613	19,323	806	1,871	23,612	180,064
November	35,233	8,033	84,533	30,100	27,067	184,967	4,000	26,500	2,000	1,667	34,167	219,133

GROSS PRODUCTION OF THE UNITED STATES FOR 12 MONTHS

(IN BARRELS)

		California	Oklahoma	Texas	Kansas	Arkansas	Louisiana	Rocky Mountains	Eastern Fields	Total
1926— December:	Month	20,276,950	17,882,908	19,753,591	3,654,156	4,266,189	2,018,734	2,658,301	3,313,000	73,823,[illegible]
	Daily average	654,095	576,868	637,212	117,876	137,619	65,120	85,752	106,871	2,381,[illegible]
1927— January:	Month	20,184,872	19,035,426	18,605,363	3,769,879	4,076,469	1,905,570	2,620,303	3,332,500	73,526,[illegible]
	Daily average	651,125	614,046	600,173	121,609	131,499	61,470	84,203	107,500	2,371,[illegible]
February:	Month	17,982,711	19,752,348	16,483,712	3,352,076	3,574,256	1,784,104	2,385,125	3,007,200	68,321,[illegible]
	Daily average	641,440	705,440	588,704	119,717	127,652	63,718	85,183	107,400	2,440,[illegible]
March:	Month	19,835,724	22,480,921	18,232,617	3,675,143	3,853,920	2,032,982	2,476,798	3,335,800	75,923,[illegible]
	Daily average	639,862	725,191	588,149	118,553	124,320	65,580	79,574	105,100	2,449,[illegible]
April:	Month	19,493,825	22,208,130	17,801,140	3,516,930	3,378,240	1,994,330	2,615,770	3,474,000	74,482,[illegible]
	Daily average	648,870	740,271	593,371	117,231	112,608	66,491	87,193	115,800	2,482,[illegible]
May:	Month	19,506,054	23,258,463	19,539,083	3,704,314	3,493,669	1,935,175	2,742,588	3,467,000	77,646,[illegible]
	Daily average	629,238	750,273	630,293	119,494	112,699	62,425	88,471	111,839	2,504,[illegible]
June:	Month	19,181,442	22,305,330	18,299,810	3,437,580	3,365,760	1,880,820	2,592,437	3,330,000	75,018,[illegible]
	Daily average	639,381	761,011	613,327	114,586	112,192	62,694	86,414	111,000	2,500,[illegible]
July:	Month	19,319,021	26,522,546	17,607,194	3,454,082	3,406,683	2,279,405	2,635,607	3,373,000	78,597,[illegible]
	Daily average	623,194	855,566	567,974	111,422	109,893	73,529	85,020	198,806	2,535,[illegible]
August:	Month	19,279,131	26,283,350	17,715,229	3,424,570	3,242,600	2,190,905	2,530,065	3,608,400	78,283,[illegible]
	Daily average	621,907	847,850	571,459	110,470	104,600	70,964	81,615	116,400	2,525,[illegible]
September:	Month	19,064,500	24,111,660	18,322,800	3,342,240	3,032,970	2,027,070	2,238,609	3,465,000	75,604,[illegible]
	Daily average	635,483	803,722	610,760	111,408	101,099	67,569	74,620	115,500	2,520,[illegible]
October:	Month	19,448,393	24,223,803	19,203,136	3,509,169	3,117,300	2,056,159	2,270,905	3,565,000	77,394,[illegible]
	Daily average	627,384	781,413	619,456	113,199	100,555	66,339	73,255	115,000	2,496,[illegible]
November:	Month	18,516,467	23,083,380	18,636,390	3,312,870	2,906,760	1,947,660	2,274,870	3,330,000	74,008,[illegible]
	Daily average	617,216	769,446	621,213	110,429	96,892	64,922	75,829	111,000	2,466,[illegible]
Total 12 months		232,089,590	271,673,865	220,300,045	43,153,009	41,714,816	24,061,914	30,041,288	40,600,500	902,635,027
Daily average		635,861	744,312	603,618	114,488	114,287	65,921	85,045	111,234	2,472,[illegible]

POPULARITY



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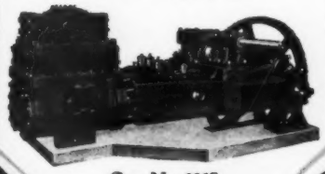

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